USAID
FROM THE AMERICAN PEOPLE

EVALUATION

EX-POST PERFORMANCE EVALUATION OF SHEBERGHAN GAS GENERATION ACTIVITY

December 2017

This publication was produced at the request of the United States Agency for International Development (USAID). It was prepared under contract with Checchi and Company Consulting, Inc. for USAID's Afghanistan "Services under Program and Project Office for Results Tracking Phase II" (SUPPORT II) project.

This report was contracted under USAID Contract Number: AID-306- C-12-00012. Afghanistan Services Under Program and Project Office for Results Tracking Phase II (SUPPORT II). This Activity was initiated by the Office of Program and Project Development (OPPD) through Mr. Nasrullah Ahmadzai, Contracting Officer Representative (COR)/SUPPORT II.

EX-POST EVALUATION OF THE SHEBERGHAN GAS GENERATION ACTIVITY

Robert Hagan, Team Leader

Christopher Wnuk, Evaluation Specialist

Sohrab Rustami, Research Assistant

Ajmal Ayobi, Research Assistant

Activity Start Date: August 2017

Completion Date: December 2017

Paul DeLucco, Chief of Party

Waheed Ahmadi, Deputy Chief of Party

Checchi and Company Consulting, Inc.

Kabul, Afghanistan

ABSTRACT

Through the Sheberghan Gas Development Project (SGDP), the United States (US) Agency for International Development (USAID) provided on-budget funds to the Ministry of Mines & Petroleum (MoMP) for natural gas exploration. Complementing SGDP, Sheberghan Gas Generation Activity (SGGA) provided hands-on advice and guidance to MoMP project managers on technical oversight and contract administration of the SGDP work through an off-budget contract.

USAID/Afghanistan commissioned an ex-post performance evaluation of SGGA to 1) explore the validity of SGGA's development hypothesis, 2) gauge the relevance of SGGA deliverable documents, 3) analyze the capacity of the MoMP, 4) detail obstacles prohibiting the exploration of natural gas deposits, and 5) describe how the results produced under SGGA have influenced the gas sector's development.

The evaluation team (ET) utilized a qualitative, mixed-methods approach to collect and analyze data consisting of a thorough document review and key informant interviews (KIIs). Key findings include:

1. Though SGGA did not have a formal development hypothesis, the validity of the ET's suggested hypothesis could not be confirmed because the four associated critical assumptions did not hold true.
2. The SGGA deliverable documents were found to be relevant as they are based on Afghan Law and will remain valid until the laws or legal frameworks change.
3. Several factors significantly limited SGGA-fostered increase in MoMP capacity, including an entrenched civil service corps committed to the state-owned enterprise (SOE) approach and constant changes in Ministry leadership.
4. MoMP possessed very few of the resources necessary to exploit Afghanistan's gas deposits, the government had difficulties applying its own laws uniformly, and poor MoMP intra- and inter-ministerial relationships undermined private investment.
5. The McDaniel report revealed that the producing Sheberghan gas fields are mostly depleted, meaning that the downstream uses planned for the gas from those reservoirs will not be realized.

TABLE OF CONTENTS

LIST OF TABLES

ACRONYMS

ADB	Asian Development Bank
AEAI	Advanced Engineering Associates International
AGE	Afghanistan Gas Enterprises
AGS	Afghanistan Geological Survey
APA	Afghanistan Petroleum Authority
AISA	Afghanistan Investment Support Agency
ACCI	Afghanistan Chambers of Commerce and Industries
BLM	Bureau of Land Management (US)
CEO	Chief Executive Officer
CGS	Coast and Geodetic Survey (US)
COP	Chief of Party
COR	Contracting Officer's Representative
DFID	Department for International Development (UK Government)
DABS	Da Afghanistan Breshna Sherkat
EQ	Evaluation Question
ET	Evaluation Team
ESIA	Environmental and Social Impact Assessment
FDI	Foreign Direct Investment
G2G	Government-to-Government
GIRoA	Government of the Islamic Republic of Afghanistan
GBU	Government Business Unit
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GS	General Schedule
GSA	General Services Administration (US)
HR	Human Resources
IP	Implementing Partner
IPP	Independent Power Producer
IT	Information Technology
KI	Key Informant
KII	Key Informant Interview

M&E	Monitoring & Evaluation
MEW	Ministry of Energy and Water
MoF	Ministry of Finance
MoMP	Ministry of Mines and Petroleum
MMS	Mineral Management Service
MOU	Memorandum of Understanding
NCE	North Coal Enterprise
NEPA	National Environment Protection Agency (GIRoA)
NFPP	Northern Fertilizer Power Plant
OEG	Office Economic Growth/USAID
OI	Office of Infrastructure/USAID
OJT	On-the-Job Training
OPPD	Office of Program and Project Development/USAID
OSHA	Occupational Health and Safety Administration (US)
OGS	Oil and Gas Survey
OPM	Office of Personnel Management (US)
PAD	Project Appraisal Document
PPP	Public-Private Partnership
PM	Project Manager
SGDP	Sheberghan Gas Development Project
SGGA	Sheberghan Gas Generation Activity
SME	Subject-Matter Expert
SOE	State-Owned Enterprise
SOW	Statement of Work
TA	Technical Assistance
TFBSO	Task Force Business and Stability Operations (US Defense Dept.)
TPAO	Turkish Petroleum Corporation
USAID	United States Agency for International Development
USEPA	United States Environmental Protection Agency
USG	United States Government
USGS	United States Geological Survey
WB	The World Bank

EXECUTIVE SUMMARY

Evaluation Purpose and Evaluation Questions

The purpose of this evaluation is to: identify lessons learned in the gas and oil sector to influence future management decision-making; evaluate the effectiveness of the Government-to-Government (G2G) modality in working with the Ministry of Mines and Petroleum (MoMP); and identify lessons learned for future activities under G2G mechanisms and provide recommendations on how to engage through G2G in the gas/oil sector. In particular, the United States Agency for International Development (USAID) has asked the evaluation team (ET) to give priority to implementable suggestions for the Government of the Islamic Republic of Afghanistan's (GIRoA) future efforts to develop its extractives sector, and to describe how USAID can more effectively support such efforts given existing budgetary and operational limitations.

The findings, conclusions, and recommendations of this evaluation are for the use of USAID's Office of Infrastructure (OI), Office of Economic Growth (OEG), and Office of Program and Project Development (OPPD) in their planning and management of similar development assistance to Afghanistan in the future.

Evaluation questions (EQs) included:

1. To what extent is the Sheberghan Gas Generation Activity (SGGA) development hypothesis valid? Did development assumptions hold true throughout the project?
2. Are the deliverable documents drafted by SGGA - contracts, regulations/laws and procedures - still relevant or outdated?
3. What evidence is there of increased capacity in MoMP/GIRoA? What factors threaten or support the retention of capacity gains at the organizational level?
4. What obstacles prohibit the exploitation of natural gas deposits in Afghanistan? (Systems Analysis)
5. Have the results produced under the SGGA project—namely, the McDaniel & Associates Gas Reserve Studies of eight existing gas fields, including test results of two Juma Bashikurd gas wells—influenced the sector's development in Afghanistan? If so, how and why?

Project Background

Through the Sheberghan Gas Development Project (SGDP), USAID provided on-budget funds to MoMP (i.e., G2G) to pay for drilling a new exploration well into a known gas field and to rehabilitate two old Soviet exploration test wells that had been drilled and plugged in the 1970s. SGGA provided, through an off-budget contract, hands-on advice and guidance to the MoMP Project Managers (PM) on all matters relating to the drilling, from initial tendering through contract administration and final close-out. The objective was to expose MoMP staff to the full range of activities that must be undertaken to administer and oversee an exploration and development program and build the capacity of MoMP's hydrocarbon directorates.

Specific project objectives focused on improving the ability of MoMP staff to develop and administer contracts, oversee drilling operations, manage the workflow connected with hydrocarbon development and environmental oversight, and develop strategies that will help the government expand its hydrocarbon infrastructure. In addition, SGGA provided a broad range of training experiences designed to familiarize Oil and Gas Survey (OGS) and Afghanistan Gas Enterprises (AGE) with modern exploration, production,

and processing technologies. Because SGGA was developed specifically to support MoMP's implementation of SGDP, of necessity this evaluation must consider MoMP/SGDP's efforts with the Turkish Petroleum Corporation (TPAO) and implementation outcomes to provide a context for and understanding of SGGA outcomes.

Evaluation Design, Methods and Limitations

The evaluation team utilized a qualitative, mixed-methods approach to collect and analyze data. Data collection methods consisted of a thorough review of project monthly reports, project documents, and related documents, and key informant interviews (KII). The team primarily utilized content analysis to identify themes in project participants' responses. Due to the limited availability of key informants (KI) for interviews, the team was not able to randomly sample KIs, but instead contacted those individuals for whom information was available and used snowball sampling to access additional KIs. Additional details on evaluation methodology are provided in the body and annexes of this report.

Document reviews and KIIs have provided:

- Information on the relevance of the (implicit) development hypothesis and assumptions;
- Data on the relevance of the activities to the project's objectives;
- Understanding of if or how SGGA contributed to any changes that did occur; and
- Understanding of how the mode of interaction between USAID, MoMP, and other implementing partners (IPs) facilitated or inhibited achievement of activity objectives.

Constraints on the evaluation included:

- High turnover in MoMP staff, limiting the pool of available SGGA-related KIs;
- Incomplete data on both SGGA training participants and their selection methodology;
- Limited availability of SGGA implementing/contracting partners; and
- Recall bias (the project closed over one year ago).

Major Findings and Conclusions

Question 1: To what extent is the SGGA development hypothesis valid? Did development assumptions hold true throughout the project?

The ET did not find an explicit, written SGGA development hypothesis in any of the documents provided. Based on its review of the scope of work's (SOW's) "Logical Framework;" the SGGA Monitoring and Evaluation (M&E) Plan log frame; and the Project Appraisal Document (PAD), the ET suggests that the development hypothesis can be articulated as follows:

> ***If*** *USAID: (a) provides capacity building assistance to MoMP for it to develop and manage hydrocarbon resources; (b) provides data evaluation and gas reserve estimates for MoMP gas fields; and (c) develops a framework for investment through a public-private partnership (PPP) for gas gathering and processing, it will* ***then*** *both increase Afghans' employment opportunities and strengthen GIRoA's natural resource governance at the national and sub-national levels.*

This development hypothesis was implicitly predicated on four assumptions, also as articulated by the ET, which were found to be invalid: (1) There are sufficient gas reserves in the existing AGE-owned Sheberghan gas fields to supply a major new power plant and, potentially, other new industrial users; (2) MoMP understands the relevance of the SGDP/SGGA effort to the development of Afghanistan's

extractives sector and, more broadly, the nation's economy; (3) MoMP is committed to working with SGGA, to fulfilling its commitments, and to acquiring and retaining the skills needed to administer the extractives sector for the benefit of the GIRoA; and, (4) MoMP staff who received capacity building support will remain with the MoMP.

McDaniel & Associates was retained to provide an industry-required independent assessment of gas reserves to confirm the potential for planned down-stream investments. Their study determined that the Sheberghan gas fields were nearly depleted and therefore incapable of fueling any of the industrial development projects (gas processing facilities or power plants) that USAID had proposed to support. The ET found that MoMP did not demonstrate sufficient managerial responsibility or reliability with regard to its in-kind project support commitments to accept "ownership" of SGGA, and was thus unable to take advantage of the project's capacity-building opportunities. Despite this disappointing outcome, the basic theory informing the hypothesis was valid from an academic standpoint. However, the departure of trained staff from MoMP contributed to poor retained capacity and seriously undermined SGGA's de facto development hypothesis.

USAID's extractives programs suffer from significant inherent structural disadvantages. U.S. Government (USG) salary structures to which all bidders must conform are potentially inadequate to engage qualified sector consultants. As a result, bidders who have sterling corporate qualifications must often bid minimally qualified staffing. The outcomes are typically negative. SGGA's predecessor project was cancelled for non-performance and at least one of Advanced Engineering Associates International's (AEAI's) chiefs of party was removed. AEAI's work without a counterpart in the MoMP and subsequent 'independent' implementation hindered both G2G interaction and implementation, consequently leaving MoMP leadership ill-informed. Such turmoil bodes poorly for project implementation and caused MoMP to conclude that USAID was not monitoring its contractors.

Question 2: Are the deliverable documents drafted by SGGA -- contracts, regulations/laws and procedures -- still relevant or outdated?

The SGGA deliverable documents were valid at the time of the evaluation. However, hydrocarbon sector technologies and Afghanistan's laws and implementing regulations are constantly evolving, so as time passes the accuracy and relevance of these documents will decline.

Question 3: What evidence is there of increased capacity in MoMP/GIRoA? What factors threaten or support the retention of capacity gains at the organizational level?

A review of the training course titles offered by SGGA suggests that the subject matter provided trainees the information they needed to understand the requirements of a modern hydrocarbon sector. By its nature, the training delivered was theoretical because there is no modern hydrocarbon sector in Afghanistan. Program designers assumed that by the time the SGGA project was completed such a sector would be emerging.

Actual course content was not available, so it is not possible to evaluate the degree to which subject matter was relevant to the daily work requirements of the trainees. Although most MoMP interviewees from Sheberghan reported that the training was helpful, the ET received widespread complaints from trainees and senior management that the training was too short and that the trainers were not qualified. Interviewees also reported that, unlike Task Force Business and Stability Operations (TFBSO) and United States Geological Survey (USGS), which embedded highly-qualified staff directly within the Ministry to

work hand-in-hand with their MoMP counterparts, SGGA provided less-qualified SGGA consultants who only occasionally came to MoMP.

MoMP struggled to manage its annual budget, which routinely results in contract staff layoffs. Many, if not most, of SGGA trainees were contract staff and so are no longer employed by MoMP. The skills these contract employees gained during their interaction with SGGA are now lost to the organization.

KIIs highlight the near absence of qualified graduates from Afghan higher-education institutions in both the economic/business and technical engineering fields. In the absence of a stream of new qualified workers, Afghanistan will remain dependent upon external technical assistance (TA) to develop its extractives sector.

As noted in the findings for Question 1, the administration and management of MoMP staff itself has been an impediment to strengthening the capacity of the Ministry because there is little incentive on the part of entrenched senior staff to change current systems, such as human resources (HR) ratings of staff performance. This is tied to entrenched patronage systems and Soviet organization processes within the Ministry, as well as to MoMP senior staff perceptions that SGGA-based activities are a threat to the status quo and their respective positions within the Ministry.

Question 4: What obstacles prohibit the exploitation of natural gas deposits in Afghanistan?

GIRoA firmly supports the state-owned enterprise (SOE) development model. However, the SOEs have limited operating cash and therefore cannot maintain either the technical or the financial ability to develop the nation's resources. To compensate, MoMP has sought private sector investment, but GIRoA has chosen winning tenders based on the perceived highest cash value of the bid rather than on the ability of the winning bidder to demonstrate that it can develop the lease successfully. As a result, almost all of the awarded contracts have been non-performing or very seriously behind schedule. Additionally, as observed by its administration of the SGDP, MoMP/AGE lacks the basic skills needed to administer a modern contract. Additionally, MoMP's inability to effectively manage or provide technical support to the on-budget SGDP Juma/Bashikurd drilling program despite extensive SGGA coaching and advice indicates that the MoMP lacks the technical and administrative skills needed to promote and support the development of the hydrocarbon sector.

Question 5: Has the McDaniel & Associates Gas Reserve Studies of eight existing gas fields, including test results of two Juma Bashikurd gas wells, influenced the sector's development in Afghanistan? If so, how and why?

The McDaniel & Associates report exposed mission critical inadequacies in AGE operations and MoMP administrative procedures. For example, the report's finding that the gas reserves are mostly depleted means that AGE will be unable to meet the demands of its largest customer, the Northern Fertilizer and Power Plant (NFPP). Additionally, for the past several years the GIRoA has been signing memorandums of understanding (MOUs) promising Independent Power Producers (IPP) access to Sheberghan gas reserves to fuel their plants. McDaniel showed there is little-to-no gas available to supply these plants, indicating that new gas discoveries will be needed. Finally, AGE did not provide the President of Afghanistan with an adequate explanation for why the McDaniel (2016) reserve estimates differed so dramatically from the Hill (2004) and Gustavson (2005) estimates. MoMP chose to explain the discrepancy by asserting that McDaniel is wrong, but has not offered evidence to substantiate this claim.

Primary Recommendations

Question 1:

1. Prior to designing and tendering a project, if the entire premise of a project is based on the accuracy of a single verifiable assumption (in the present case the availability of gas in the Sheberghan gas field), USAID, other donor agencies, or the applicable GIRoA ministry should first verify that assumption.
2. USAID should continue capacity-building at the MoMP both for basic HR management and budget/finance administration and for needed technical skills. For example, support to current in-house information technology (IT) software development efforts could yield quick returns inexpensively.
3. When USAID designs projects that are outside of typical organizational expertise (like extractives), USAID should retain highly qualified industry experts to advise and assist in the project design.
4. Many MoMP functions parallel those routinely delivered by USG agencies like USGS, the Mineral Management Service (MMS), and the Bureau of Land Management (BLM), among others. USG agencies have cost structures that conform to USAID requirements, and should be considered before USAID contractors when their skill sets match project requirements.

Question 2:

1. SGGA project administrative, capacity-building, and technical documents should be made available to the public.
2. As recommended in Annex VII, USAID should highlight and promote specific categories of documents as well as individual reports for their valuable information (especially on key industry legal and administrative requirements and implementation lessons learned) for potential future programs and investors in Afghanistan.

Question 3:

1. Although short courses, workshops, and classroom training have a role in developing capacity, experience has shown that development of staff capabilities is most successful and most appreciated when embedded counterparts provide on- the-job training.
2. Geology is a field science. USAID programs in extractives must make provisions to accommodate extended field training.
3. MoMP needs to adopt a merit-based (not seniority or patronage-based) employee retention program to better enable it to retain donor-trained staff.
4. MoMP performance milestones should be contractually established and enforced to ensure that MoMP honors its agreed in-kind collaboration commitments.
5. Since graduates come to MoMP lacking critical skills, a long-term focus on improving the capabilities of university students at graduation should be considered. Several strategies are offered in this report.

Question 4:

1. GIRoA needs continued, long-term guidance from USAID – with support from other USG institutions as necessary – to shift thinking away from the SOE development model toward policies strongly promoting private sector investment in extractives. USAID should also encourage GIRoA to tender its exploration properties to private sector companies that have the demonstrated financial and technical skills needed to conduct successful exploration and development projects.
2. GIRoA must be guided toward understanding that the value of its extractives comes from mining/pumping hydrocarbons, the associated job and secondary industry creation, and the taxes on this new economic development, rather than from capturing (or attempting to capture) the commodity value of its deposits.

Question 5:

1. Despite some weaknesses in the McDaniel and Associates study due to unavailability of data withheld by MoMP/AGE staff, the McDaniel report provides a reasonable status assessment of Sheberghan's gas fields. There is no need to redo this study as some in MoMP have suggested.
2. Given the findings of the McDaniel and Associates report and the urgent need to find new oil and gas reserves, the GIRoA must be encouraged to adopt policies that incentivize lease holders to accelerate their exploration efforts. This may include improved lease terms or amended profit sharing agreements.

Per the Mission's request, the ET also offers an additional recommendation in Annex IX – focused on developing GIRoA's small-scale mining sector – that it believes could yield significant benefits for the overall extractives sector.

PROJECT BACKGROUND

The objective of the on-budget Government-to-Government (G2G) Sheberghan Gas Development Project (SGDP) was to design a roadmap for development of the Sheberghan gas fields in northern Afghanistan to address the country's critical power shortage. Under this project, the United States Agency for International Development (USAID) supported drilling/rehabilitating up to three gas wells; conducted a gas reservoir study to certify existing/producing field reservoir gas quantity, pressures and quality; and assisted the Afghan government to partner with the private sector to design, build and operate a central, expandable gas processing (sweetening) plant and a system to transport raw gas from wells to the processing plant. The project also encouraged the private sector to construct and operate a series of gas-fired power generation plants.

Because coordination and collaboration among all stakeholders was essential to the success of this project, in association with SGDP USAID also established the Sheberghan Gas Generation Activity (SGGA) and awarded a $30.44 million contract to Advanced Engineering Associates International (AEAI) to implement the activity between December 2012 and July 2016.

SGGA's purpose was to provide technical assistance and build up the capacity of the Ministry of Mines & Petroleum (MoMP), the Ministry of Energy and Water (MEW), and the Afghan national power utility, Da Afghanistan Breshna Sherkat (DABS). This technical assistance (TA) and capacity-building activity had two primary objectives: (1) aid in the formation of the Afghanistan Gas Enterprise (AGE) and enable it to regulate and administer gas production, gathering and processing, as well as to supply gas to the centralized independent power producer(s) (IPPs); and (2) enable DABS-Northwest to operate and maintain the transmission and distribution of electric power from the Sheberghan central power center and to manage commercial power sales to residential and commercial/industrial customers.

SGGA assisted implementation of SGDP through four activities centered on the MoMP to deliver hands-on experience contracting and administering a gas drilling program. This work was to be carried out through drilling and testing one new gas well and re-entering and testing two existing wells in a large, but undeveloped, gas field (Juma/Bashikurd) near Sheberghan City, Jawzjan Province. The well-testing program was carried out through a commercial service host-country contract between MoMP and the Turkish Petroleum Corporation (TPAO), jointly funded by USAID and MoMP under SGDP, but with procurement and contract management guidance from SGGA.

SGGA provided MoMP with guidance and advice in tendering a gas reserve study, awarded to an international petroleum engineering firm (McDaniel & Associates), to assess available data and, if feasible, prepare reserve estimates for seven known gas fields in Jawzjan Province. The data assessment and reserve estimate activity – known as the McDaniel & Associates Gas Reserve Studies – was funded by the Government of the Islamic Republic of Afghanistan (GIRoA) entirely through the SGDP as a contract modification to TPAO.

SGGA developed a business and financial structure for a Public-Private Partnership (PPP) for the creation of a gas gathering and processing business to meet the expanding needs for gas industry infrastructure in northwest Afghanistan while providing a long-term profitable commercial enterprise for the Afghan government. SGGA also presented a plan to the Ministry and government for the redevelopment of Ministry land, currently occupied by unusable facilities, as an 'energy park' for locating private (or public-

private) gas infrastructure, such as gas gathering and processing facilities, pipeline terminals, a power plant, and potentially an oil refinery.

In addition to these direct infrastructure activities, SGGA conducted a wide-ranging capacity-building program that included business- and industry-focused training in such areas as business English, drilling techniques and management, and the Ministry's first distance learning program -- a petroleum industry health and safety management course provided by the U.S. Occupational Safety and Health Administration (OSHA). SGGA also provided ongoing mentoring for the Ministry in public information, office management, and petroleum industry contract procurement and contract management.

The historical and background context of MoMP/AGE provides insights into the Ministry's ability to absorb SGGA assistance support and to effectively institute positive changes. As background information to help frame the context of the project:

"The AGE as an entity has been in decline for the last couple of decades. The gas production is barely 5% of the highest production levels. The reserves are also declining because of lack of exploration activity and investment in the upstream sector. The AGE has 950 employees and contractors and employee profile consists of an aging group of senior employees with little general management qualifications, but overall the ratio of formal qualifications and industry-specific expertise is extremely low."[1]

The following summarizes the objectives and key tasks of the SGDP. The on-budget, G2G project was funded by USAID and implemented by the MoMP in association with and support from the off-budget SGGA project implemented by AEAI (together, the two projects are termed the "SGGA/SGDP Program").

SGGA/SGDP Program Objective

- The overall objective of the SGGA/SGDP program was to support the creation of infrastructure (both physical by SGDP and human resources by SGGA) that will enable the commercial use of Afghanistan's gas reserves.

SGGA/SGDP Key Completed Tasks

- Supported MoMP management of on-budget drilling services through a contract with Turkish National Petroleum Corporation.
- Arranged for "Gas Field Data Evaluation and Contingent Resources Reports" by an international petroleum engineering firm to evaluate currently available geological, geophysical, and production data to update the gas reserve estimates for the Sheberghan gas field.
- Prepared a proposal for a PPP for gas gathering and processing, an off-budget task for preparing a model PPP framework for building and operating commercial gas gathering and processing facilities in the Sheberghan area.
- Produced a conceptual plan for a "Gas Infrastructure Hub" at the existing Gerquduq location to include a future gas gathering terminus, gas processing facility, power plants, trunk pipeline terminus, and compression for treatment, transmission, and oil refining.

[1] UNICOM Inc., Afghan Gas enterprise—Assessment Report, Assessment of Afghan Gas Enterprise with Findings and Recommendations, 14 November 2016.

- Provided ongoing training and mentoring programs emphasizing technical skills to support the gas sector and to help assure sustainability of MoMP projects.

The Logical Framework for SGGA is provided in Annex III.

EVALUATION PURPOSE AND EVALUATION QUESTIONS

Evaluation Purpose

The evaluation purpose was two-fold:

- Identify lessons learned in the gas and oil sector to influence future management decision-making; and
- Evaluate the effectiveness of the G2G modality in working with MoMP; identify lessons learned for future activities under G2G mechanisms, and provide recommendations on how to engage through G2G in the gas/oil sector.

In addition, USAID is currently actively consulting directly with the new Minister of MoMP and seeks to provide timely assistance and grounded suggestions on how to best effect change to increase the potential for Afghanistan's development of its extractives sector for the benefit of its population. As a result, the ET was also requested to give priority to implementable suggestions for GIRoA future efforts to develop its extractives sector and how USAID can more effectively support such efforts given existing budgetary and operational limitations. These recommendations are detailed in the "Mining Sector Reforms" textbox found in Annex IX.

Evaluation Users

The findings, conclusions and recommendations of this evaluation are for the use of USAID's Office of Infrastructure (OI), Office of Economic Growth (OEG), and Office of Program and Project Development (OPPD) in their planning and management of possible related development assistance to Afghanistan. USAID's efforts to help MoMP develop Afghanistan's extractives sector as a source for economic development, jobs creation, and tax/royalty revenue for GIRoA must now rely on less resource-intensive initiatives in full collaboration with GIRoA and involve other donors to sustainably address critical gaps. This evaluation is intended to offer recommendations under this new reality.

Evaluation Questions

Answers to the following five USAID-provided evaluation questions (EQs) are developed based on available evidence to provide information to address the purposes of the evaluation noted above:

1. To what extent is the SGGA development hypothesis valid? Did development assumptions hold true throughout the project?
2. Are the deliverable documents drafted by SGGA -- contracts, regulations/laws and procedures - still relevant or outdated? In answering this question, please provide a narrative reply and a table of relevant and non-relevant documents.
3. What evidence is there of increased capacity in MoMP/GIRoA? What factors threaten or support the retention of capacity gains at the organizational level?
4. What obstacles prohibit the exploitation of natural gas deposits in Afghanistan? (See Systems Analysis components, next page)

5. Have the results produced under the SGGA project—namely, the McDaniel & Associates Gas Reserve Studies of eight existing gas fields, including test results of two Juma Bashikurd gas wells—influenced the sector's development in Afghanistan? If so, how, and why?

Systems Analysis for EQ 4 examined the state of the as-is system and the differences with respect to an ideal system, specifically:

a. What resources (inputs) are necessary to exploit natural gas deposits? Are these available locally?

b. To what extent do the rules (laws, regulations, or procedures) support or prohibit exploiting natural gas deposits?

c. What roles are necessary to exploit natural gas deposits? Who is fulfilling these roles and how well?

d. How do the relationships in the system support or prohibit exploiting natural gas deposits?

e. Where is the demand for these results coming from? Is there opposition to achieving these results?

EVALUATION METHODS AND LIMITATIONS

Because this is an ex-post performance evaluation, the ET focused on lessons learned and on providing findings, conclusions and recommendations for USAID's planning process for future related development support and the possible inclusion of the extractives sector (in particular, natural gas) in USAID's future strategy for Afghanistan.

Annex I provides the Scope of Work for this evaluation, which includes additional details on the planned "Lines of Inquiry" and related methodology.

Methodology Overview

The ET utilized a qualitative methodology to generate the best answers to the EQs, with a focus on how or why changes did or did not manifest from SGGA activities. This approach reflected the availability of information sources, which were primarily in the form of documents available from SGGA participants and industry experts. Although the methodology is qualitative in nature, the ET limited its findings to those statements of fact that have been independently confirmed by at least one separate, independent source.

For each EQ, the ET used the following more tailored methodology:

- **EQ 1 (Development Hypothesis and Assumptions):**

  A project development hypothesis can be assumed to be academically sound and well grounded, especially in a more normal development and collaborative environment that has a high expectation that agreed planned activities will be supported and implemented. The ET explored and documented the constraints on the flow of capacity/empowerment and generated documents that affected MoMP/SGGA's outcomes. The following implied development hypothesis is employed:

  If USAID: (a) provides capacity building assistance to MoMP for it to develop and manage hydrocarbon resources; (b) provides data evaluation and gas reserve estimates for MoMP gas fields; and (c) develops a framework for investment through a public-private partnership for gas gathering and

processing, it will then both increase Afghans' employment opportunities and strengthen GIRoA's natural resource governance at the national and sub-national levels.

- **EQ2 (Relevance of Deliverable Documents):**

  The ET reviewed AEAI's deliverables for their current relevance and potential use to both international and domestic investors in the sector.

- **EQ3 (Increased and Retained Capacity in the MoMP):**

  The number of SGGA trained staff who have remained with the MoMP served as the primary indicator for evaluating the success of this effort. Key informant interviews (KIIs) have provided consensus information on the success of various training approaches.

- **EQ4 (Obstacles to the Exploration of Natural Gas Deposits):**

  A systems analysis approach was utilized. Given the long-term timeframes required for capacity building and plant construction, however, the ET also considered the 'critical path' of required initiatives.

- **EQ5 (McDaniel & Associates Gas Reserve Studies):**

  Insights were solicited from both private sector and MoMP key informants (KIs) to understand how the gas reserve studies have influenced their decisions.

The SGGA project and others involved in Afghan's extractives sector have produced a wide range of documents that have provided insights and evidence to address the EQs. Along with KII notes, available related documents were reviewed to obtain factual and qualitative information to establish a cluster(s) of findings for each EQ. These documented findings were utilized to develop supported conclusions for each EQ. Supported conclusions were then employed to serve as the basis for recommendations to USAID. A parallel effort was made to document 'lessons learned.'

Methods

Aside from the physical evidence of drilled gas wells, evidence of SGGA's success, problems and lessons learned was primarily available through its reports, through the documents and plans it produced, and from individuals involved in the program or who might have specialist knowledge. The ET employed structured KIIs and reviewed all related documents produced by SGGA and those related documents produced by others involved in the sector. The ET reviewed each of the provided documents along with others from independent sources to establish a cluster of findings for answers to the questions listed in the attached Evaluation Design Matrix (see Annex IV).

Document Review

USAID provided relevant documents to the ET. Additional related documents funded by Asian Development Bank (ADB), the Department for International Development (DFID) and others were also identified. All provided and identified documents have been reviewed for information related to the five EQs and lessons learned. Notes related to each question have been collected on the KII and Document Review Protocols listed in Annex V. Document reviews provided the bulk of findings for this evaluation, given the decreased number of involved MoMP and SGGA implementing staff available for interviews. A listing of documents screened for related information is provided in Annex VI.

Table 1: Types of Documents Reviewed

Type of Document	# Reviewed
AEAI Project Reports (excluding monthly reports)	62
Oil and gas sector reports (McDaniel, Adam Smith, Backer Boots, Gustavson Associate, Samuel Hall, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), UNICON, RAND)	20
United States Institute of Peace Reports	2
SIGAR Reports	5

Key Informant Interviews

The ET interviewed all available individuals who had direct knowledge of SGGA (see table directly below and Annex VIII for interviewee data). The greatest percentage of MoMP's SGGA participants were based in Sheberghan. Since travel to Sheberghan was not authorized in the SOW, the ET made every effort over the seven-week evaluation period to locate and conduct email, phone or teleconference interviews with these former program participants; however, available contact information was more than three years old and very nearly all of the Sheberghan SGGA trainees had been laid off following Minister Shahrani's departure from the MoMP. A listing of all organizations and KIs that the ET attempted to contact is provided in Annex VIII. The ET did seek to identify additional informants during discussions with the MoMP and with interviewed individuals who had left the MoMP. Based on referrals from the initially identified KIs, the ET employed a snowball method (each KI was asked for the contact details of other KIs) to identify further data sources and subsequently contacted all newly identified KIs. However, the ET was not successful in obtaining the contact details of a significant additional panel of SGGA participants who would agree to an interview.

Table 2: Types of Key Informants Interviewed

No:	Type of Key Informant	Relevant EQs	# of Interviews	Notes
1	MoMP (Current Staff)	EQs: 1-5	27	Includes the MoMP Director General
2	MoMP (Previous Employees)	EQs: 1-5	9	Includes three previous SGGA Project Managers
3	Mining companies	EQs: 1,3,4	3	Includes one previous MoMP employee, also counted above
4	University teachers & students	EQs: 3,4	3	
5	Companies with current or recent presence in Afghanistan	EQS: 3,4	4	
Total Key Informants Interviewed[2]			**45[3,4]**	

The historically high turnover in MoMP professional staff limited the ET's access to KIs who were identified through consultations with known SGGA principals and staff. Two independent sources have confirmed that no SGGA involved staff remain with the MoMP. Multiple requests for interviews were sent to 59

[2] In total, 104 KIs were contacted to be interviewed

[3] One KI was counted both as a previous MoMP employee and a mining company employee, hence the discrepancy between the sum of the values listed in the table and the total KIs interviewed

[4] Of the 45 KIs interviewed, 34 received training from AEAI/SGGA.

SGGA-associated potential informants that resulted in a negative or no reply. However, the ET was able to conduct a total of 45 KIIs with individuals who were previously associated with SGGA or had knowledge of its operations. Many individuals belonged to several KI categories. Because of the difficulty in identifying and locating SGGA participants and the occurrence of a ten-day Afghan holiday period mid-way through the evaluation, most of the critical KIIs did not occur until the last week of the evaluation field work.

Table 3: KII Participant Demographics

45 KIIs who are or were MoMP staff, By Age Group*	By Gender	By Tenure with MoMP (years)	With MoMP now? (Y/N)	By Level (Policy / Program / Operations)	By Education (Engineering, Legal, Business)
40-60 (23 people)	Males-22 Females- 1	4-10 yrs.+-21 3 yrs. or less-2	Yes -14 No- 9	Policy (3) Program (6) Operations (14)	Engineering (15) Legal (4) *
20-40 (22 people)	Males- 20 Females- 2	4-10 yrs.+ - 13 3 yrs. or less – 9	Yes -17 No- 5	Policy (8) Program (8) Operations (6)	Engineering (12) Business (7) *
** Age is estimated, and some participants' education background is unknown*					

All KIs were advised that their participation was strictly voluntary and that any comments or information they chose to provide would be kept strictly confidential.

Data Analysis

The ET notes from KIIs and document reviews were transcribed, summarized and consolidated on a daily basis. The ET inserted KIIs notes into an Excel file for each KII protocol question to facilitate content analysis and the identification of themes between participants. The ET's initial plan to employ a more classic 'contribution analysis' for EQ 1 was not found feasible due to the limited success of the program and non-project related compounding factors.[5] The ET also unsuccessfully sought indications of any differences in perspectives on activity relevance or effectiveness between different groups (such as men and women, older versus younger, participants from different training programs, etc.). Information obtained through KIIs and document reviews was consistent both by source and between sources.

Gender and Social Considerations

SGGA incorporated gender into its design and activities, with the planned full inclusion of a female specialist in related training. Given this, the ET planned to incorporate gender and other relevant social considerations into its analysis through disaggregation of results (from available data in reports) and potential comparative analysis, such as if female and male participants perceived or were able to use training knowledge and skills differently. Example representation of females/males in AEAI-provided training are 0/15 for statistical training, 5/25 for organizational development, and 8/17 for Gender Awareness. No evidence was found of AEAI engaging a female trainer. The limited number of female MoMP employees and incomplete contact information for trainees made comparative analysis infeasible.

[5] The high turnover in MoMP leadership and senior staff limited planned collaboration.

The only female trainee the ET could locate through snowball sampling remembered attending three AEAI-provided training sessions but could not recall their subjects. However, two females within the MoMP's Gender Directorate who have remained with the MoMP remember attending an AEAI training focused on gender issues. In the absence of a needed panel of related KIs, the ET's data collection and analysis focused on understanding gender issues within the MoMP during SGGA implementation and providing forward-looking recommendations to address gender equity issues in future extractives sector or G2G activities.

Evaluation Limitations and Mitigation Plan

The ET notes the following potential limitations/biases and has undertaken mitigation strategies in its approach to data collection, analysis, and reporting.

Table 4: Evaluation Limitation and Mitigation Strategies

Limitation	Implication	Mitigation Strategy
Incomplete Information	As the project closed more than one year ago, and because current contact information was extremely limited, the ET had limited access to AEAI[6] and MoMP staff and SGGA training participants. Ultimately, the team was able to conduct 44 interviews.	The ET contacted all persons for whom information was available and used snowball sampling to gain access to additional KIs.
	The lower number of interviewees and resulting non-random sampling strategy may have led to greater respondents' bias.	The ET used concurrent triangulation between information from interviews and document review. Additionally, the ET only utilized those findings that were independently highlighted by three or more sources, which lends strength to the presented findings. The ET has also provided sources for findings within the Key Findings, Conclusions, and Recommendations Matrix in Annex XIII.
	There were also some gaps in documentation regarding the SGGA design, including the lack of an explicit, written development hypothesis and associated assumptions.	The ET generated a working development hypothesis and several associated assumptions to facilitate answering EQ 1 based on review of the SGGA logical framework and Monitoring and Evaluation (M&E) plan.
Recall Bias	Key Informants may have experienced some recall challenges given the SGGA period of performance.	The ET asked probing questions and also relied on documents to supplement information generated through interviews.
Response Bias	Respondents may have responded in one way or another, either negatively or positively, regarding the outcomes and success of SGGA. Additionally, the pattern of staff retention within	Unsolicited negative/positive comments from KIIs are noted; however, the ET then requested details on other aspects of the program from respondents.

[6] In the case of AEAI in particular, the ET was only given contact details for a limited number of individuals. Those who the ET attempted to contact either did not respond to the initial contact attempt, or after responding did not answer the questions subsequently posed by the ET.

	MoMP may have resulted in a preponderance of problem or success reporting.	The ET noted discrepancies between information from KIIs & document reviews for further investigation or triangulation.
Scope of EQs	The EQs presented a broad scope of inquiry for the evaluation.	The ET focused on generating responses to the EQs that contributed to addressing the purpose of the evaluation and user needs.
Discussion of Illicit Behaviors	The ET's analysis touched on issues of corruption and patronage within the extractives sector. Given the illicit nature of these behaviors, it may make informants less likely to truthfully disclose behaviors.	All KII were assured that no information provided would be directly attributable to any one individual interview.

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This section presents the evaluation's findings, conclusions, and recommendations and addresses each EQ individually.[7]

QUESTION 1

To what extent is the SGGA development hypothesis valid? Did development assumptions hold true throughout the project?

FINDINGS AND CONCLUSIONS

The ET did not find an explicit, written SGGA development hypothesis in any of the documents provided. Based on its review of the SOW's "Logical Framework;" the SGGA M&E Plan log frame, and the project appraisal document (PAD), the ET suggests that an implicit development hypothesis can be articulated as follows:

> ***If USAID: (a) provides capacity building assistance to MoMP for it to develop and manage hydrocarbon resources; (b) provides data evaluation and gas reserve estimates for MoMP gas fields; and (c) develops a framework for investment through a public-private partnership for gas gathering and processing, it will then both increase Afghans' employment opportunities and strengthen GIRoA's governance at the national and sub-national levels.***

Further review of these materials also suggests that this development hypothesis was predicated on four implicit assumptions that were found to be invalid:

- That there is sufficient gas reserve in the existing AGE-owned Sheberghan gas fields to supply a major new power plant and, potentially, other new industrial users;
- That MoMP understood the relevance of the SGDP/SGGA effort to the development of Afghanistan's extractives sector and, more broadly, the nation's economy;
- That MoMP would commit to a serious effort to interact with SGGA to acquire and retain the skills needed to administer the extractives sector for the benefit of the GIRoA; and
- That MoMP staff who received capacity building support would remain with the MoMP.

The following sections explore the ET's suggested revised development hypothesis and assumptions. They synthesize findings, conclusions, and recommendations through the lens of SGGA resources, MoMP ownership, MoMP administration and management, SGGA scope, and metrics.

[7] The recommendations are based on findings drawn from the evaluation informants and desk review as well as the professional experience, knowledge, and judgment of the evaluation team gained from extensive past work in the global extractives sector, including in Afghanistan.

Project Scope

Findings: SGDP was conceived to provide MoMP/AGE with sufficient on-budget monies to begin the exploration and development activities that a typical modern gas production and distribution state-owned enterprise would perform in a working marketplace. SGGA provided MoMP and MEW/DABS with access to technical experts needed to advise and build capacity to effectively carry out the on-budget G2G program. SGGA attempted to integrate a wide range of energy sector development activities into a single project. Although not achieved, the planned scope of SGGA included assisting DABS with complex power generation and transmission issues; planning upstream (exploration and production), midstream (transmission and processing) and downstream (power plant, chemical plants, other industrial users) utilization and supply; and providing capacity building to multiple dispersed MoMP Directorates. Though this integrated approach may have been logical in a more developed country, the energy/extractives sector is a multi-trillion-dollar global industry, and USAID had neither the financial resources nor the necessary resident technical knowledge in most sector components to effectively or successfully address all of these elements within the project simultaneously. As a result, some key project objectives had to be abandoned because the goals were unachievable. AEAI staff were spread too thinly across too many activities, i.e. SGGA was under-budgeted for the intended objectives.

The ET identified several examples of under-resourcing during key stages of SGGA and SGDP's implementation, including: under-budgeting the gas processing plant by 100%; under-budgeting the petroleum engineering support contract by 300%;[8] and accepting minimally qualified drilling service providers because they were the only ones that bid within budget. Such unrealistic planning creates inflated hopes for project outcomes, for example an expectation that three wells could be prepared for production at Juma/Bashikurd, or that a processing facility might be built. When these outcomes are not realized, MoMP holds USAID to blame for non-performance as stated in repeated KIIs.

SGGA reports indicate that USAID administrative processes significantly delay project implementation. Required contract modifications can drag on for the better part of a year and service provider vetting can take almost as long. As the SGGA monthly reports indicate, these delays negatively impact USAID credibility among both service providers and MoMP, and precipitate difficulties in project implementation.[9]

Many donors besides USAID (e.g., Task Force for Business and Stability Operations (TFBSO), ADB, World Bank (WB), and DFID) were pursuing MoMP capacity-building programs simultaneously, to the point where MoMP did not have the staff or resources to adequately support SGGA and the other donor programs.

Conclusions: Issues identified in the Findings section, such as under-budgeting and excessive optimism for project outcomes, indicate that SGGA, a project that focuses on supporting the technical aspects of the extractives sector, may have been outside of USAID's internal technical expertise and would likely have

[8] Under-budgeting percentages have been calculated by the ET based on data derived from the sources listed in the corresponding section of Annex XIII.

[9] The monthly reports document numerous examples of USAID administrative procedures delaying project implementation. One example is the delayed vetting of Kardan University and Schlumberger, a $91B oil services company. The vetting process took eight months to complete; shortly after approving the contract, USAID required it to be cancelled. The process is detailed in monthly reports between April 2014 and April 2015, and especially in July 2014, September 2014, October 2014, and April 2015 reports.

benefitted from a more limited scope and/or USAID's increased collaboration with other United States Government (USG) organizations, such as the United States Geological Survey (USGS).

The extractives sector is not typically a focus area for USAID programs, so Agency program designers are not as familiar with sector economics and technical requirements. Other factors discourage qualified companies from bidding once they become familiarized with the requirements. According to SGGA, "one firm declined to participate [in the gas reserve study] because of concerns over meeting the sheer volume of US contracting requirements." Additionally, the human resources of such sector projects may be under-resourced, given that subject-matter experts (SME) are difficult to retain because industry salary structures are disproportionately higher when compared to USG allowances.[10]

Resources

Findings: The McDaniel & Associates study was commissioned to determine whether or not sufficient hydrocarbon reserves were available to supply the planned investment(s) in Sheberghan gas fields. However, the study, which was conducted at the end of the SGGA project, revealed that AGE is unable to meet its current gas supply commitments because the existing gas fields are depleted. Additional new demand cannot be accommodated without new sources of gas.

SGGA project designers accepted the dated findings presented in Hill (2004) and Gustavson (2005) and did not appreciate that the reserve estimates in those reports were based on production estimates derived from incomplete MoMP data. Despite the fact that the first implicit SGGA assumption – that there was sufficient gas reserve in the existing AGE-owned Sheberghan gas fields to supply a major new power plant – was flawed, the implementation program defined in the AEAI contract (and carried out by AEAI) was well conceived. SGGA deliverables provide MoMP with a blueprint with general cost estimates for reviewing the kinds of facilities that need to be developed to build out a complete hydrocarbon infrastructure, including gas transmission pipelines, various gas processing technologies, sulfur removal technologies and options, and downstream power plant options However, project designers also did not consider the seven years of additional production from Sheberghan that had occurred by the time SGGA was conceived and that there would likely be an additional five to ten years of production from an old gas field by the time the various proposed facilities were actually built..

Conclusions: The fact that the Sheberghan-based gas reserves were not sufficient to supply a major new power plant and potential new users means that the downstream uses planned for the gas from those reservoirs won't be realized without new sources of gas.

MoMP Ownership

Findings: From its document review, the ET found that MoMP did not provide promised implementation support to SGGA, which significantly limited the effectiveness of the intervention. For instance, AEAI monthly reports from January 2015 to October 2015 provide numerous examples of MoMP's inability to provide administrative support for the TPAO contract. Other examples refer to lost bid paperwork

[10] Bearing in mind that industry-wide salary figures can exceed the amounts allowed under USG maximums and that SGGA was tendered at the peak of the oil boom, qualified individuals could work in safer countries for the same, or potentially more, than SGGA could offer even with the 70% uplift, thus reducing the likelihood that qualified individuals would find extractive work in Afghanistan attractive.

(October 2013) and the inability of MoMP project managers to mail letters prepared for them (November 2013).

Overarching areas of less-than-expected collaboration, as elaborated in the AEAI monthly reports, include:

- Deficient field support (e.g., no funding for AGE engineers to visit the TPAO rig unless TPAO or SGGA provided transportation);
- Routinely delayed access to critical data (e.g. McDaniel study);
- Delayed administrative actions (e.g., deliverables that required input from MoMP but never received timely - or any - review or comment);
- Deficient support for planned training activities (e.g., facilities were sometimes not made available to trainees from other directorates, managers would state that some programs were unnecessary or took staff away from their Ministerial duties for too long); and
- Deficient and delayed administrative support for items flagged by SGGA (e.g., paying valid TPAO bills, challenging invalid TPAO contract claims, etc.).

Conclusions: The ET found that MoMP did not demonstrate sufficient managerial responsibility or reliability with regard to its in-kind project support commitments to accept "ownership" of SGGA. This largely invalidated the development hypothesis' assumption that MoMP would commit to a serious effort to interact with SGGA. Much more would have been achieved had MoMP been a more engaged and proactive partner.

MoMP's Administration and Management

Findings: As reported by both current and former staff, the MoMP has very few HR mechanisms to deal with inadequate staff performance, and its leadership was unwilling to exercise its authority to compel compliance. As with USAID's recently evaluated MIDAS project involving the minerals sector, MoMP's leaders demonstrated a lack of willingness to act on SGGA advice and guidance, as detailed above and throughout this report. Frequent leadership changes in key positions – including eight project managers (PMs) over the course of the project, five Petroleum Director Generals, and five MoMP Ministers over a five-year time period – also hindered the effective implementation of SGGA. Apparent personality conflicts between one or more SGGA Chiefs of Party (COPs) and one or more MoMP Ministers/Acting Ministers precipitated communication shutdowns between the project and the Ministry. In one instance, MoMP gave SGGA 48-hour notice to vacate their MoMP-provided office space (November 2012 monthly report). Furthermore, an extended event detailed in the June 2012 report culminated in the removal of the COP, while a KII with an MoMP informant in a position to know specifics indicated that MoMP requested the removal of a second COP. These shutdowns led to project implementation delays.

MoMP's poor budgeting and administration led to spending freezes, to unpaid per diem bills, and ultimately to repeated cycles of staff layoff. As noted in the AEAI monthly reports, layoffs typically removed donor-trained staff members, who were mostly contracted employees, indiscriminately. MoMP's failure to include agreed-upon field support for SGGA in its annual budgets resulted in a lack of funds for essential training, inspection, and monitoring trips. AEAI's reports also noted the inflexibility of MoMP's annual budgets and the absence of senior management interventions, which resulted in a wide range of project delays and failures.

Despite more than a decade of training in free market principles through donor-supported extractives programs by the WB, TFBSO, USAID, and other donors, ET findings demonstrate that MoMP practices are still strongly tied to SOE-style command and control economic planning. For example, SGGA reports that:

> ***"The attempt to evade the finance charges [on legitimate TPAO bills] reflects the failure in many segments of MoMP to adapt to both commercially-oriented and transparent approaches and to accept accountability for its management's planning and budgeting failures."***

Highly skilled MoMP staff who left to form their own extractives businesses reported being unsuccessful in getting the MoMP to approve projects and stated that Ministry staff continued using SOE-style (versus free-market) practices that stymie Afghan investment.

Conclusions: The Ministry's administration and management of SGGA significantly undermined two of the key assumptions underlying the project's development hypothesis: that MoMP understood the relevance of the SGDP/SGGA effort to the development of Afghanistan's extractives sector; and that it would commit to a serious effort to interact with SGGA to acquire (and hopefully keep) the skills needed to administer the extractives sector. Most KIIs with junior MoMP staff and former staff indicate a consistent belief that MoMP's administration and management issues with SGGA are a product of entrenched senior staff behavior related to traditional tribal patronage systems and Soviet organization processes, as well as to MoMP perceptions that SGGA-based activities could threaten the status quo and their respective positions within the Ministry.

MoMP HR policies do not hold staff to account for under-performance or provide rewards for exceptional performance. Nor did MoMP honor most of its most critical in-kind contribution agreements (while donors have not held MoMP accountable). Frequent changes in top personnel created a fluid and often unclear leadership situation in the MoMP resulting in moving targets for collaboration and coordination.

Because MoMP did not effectively develop annual budgets or track budget outlays, trained staff bore the brunt of shortfalls by not being paid their per diem or, worse, getting laid off. Managers appear to have had little ability to adjust funding for new or even long planned and agreed collaboration initiatives. Although there is no documentation on the success of capacity-building efforts, the MoMP confirms that no SGGA staff have remained with the MoMP. The ET concludes that, in the absence of HR management improvements, SGGA's direct training programs did not provide the expected effective leverage for development.

Metrics

Findings: Analysis of contract deliverable schedules indicates that USAID (and most other donors) prefer simple metrics such as: "hours of training provided" and "number of contract deliverables submitted on time" as measures of contractor success.

Conclusions: The output-based metrics used to assess this project's effectiveness rarely measure actual performance success. More meaningful success measurements, like "staff skills increased as measured by improved test scores" or "decreases in the time that it takes administrators to advance simple but often critical paperwork," were not used.

RECOMMENDATIONS

The ET generated the following recommendations based on its EQ1 findings and conclusions:

Project Scope

1. USAID can more effectively promote the Afghan extractives sector by focusing its future interventions on more narrowly defined actions that have a higher likelihood of success. There are a number of U.S Federal and state government agencies that contribute critical input to extractives development and management – USGS, US Bureau of Land Management (BLM), Mineral Management Service (MMS), United States Environmental Protection Agency (USEPA), US Coast and Geodetic Survey (CGS), US Office of Personnel Management (OPM), US Congressional Budget Office (CBO), US General Services Administration (GSA), and various state agencies – that could provide meaningful guidance to MoMP/GIRoA.
2. Because USAID has limited in-house expertise in the extractives sector, it should have on-demand access to extractives sector experts that can provide informed project design and costing advice as follows:
    a. Provide sector experts to help Afghanistan select bids and negotiate contracts that are more likely to be implementable.
    b. Develop the structures and build in the necessary funding in future programs to be able to pay extractives SMEs, as many with the necessary skills and experience command rates that fall outside of USG rates.
    c. Alternatively, industry organizations like the Northwest Mining Association might be helpful in locating qualified SMEs who might be willing to work within USG rates.
3. Identifying solutions to make the USAID vetting office more efficient would help to reduce excessive implementation delays.

Resources

1. When the key premise of a project is based heavily on a single verifiable assumption – i.e., that there were sufficient gas reserves in the existing AGE-owned Sheberghan gas fields to supply a major new power plant and, potentially, other new industrial users – that assumption should be tested before the project is designed.

MoMP Ownership

1. Donors must hold MoMP accountable to honoring in-kind agreements connected to programs.
    a. Suggest the establishment of an MoMP project escrow account to ensure that field staff receive their promised per diem on time and in full.
    b. In-kind collaboration must be included in MoMP's annual budgets as authorization for agreed financial outlays in support of collaborative activities.
    c. Donor recipients should be assigned measurable performance milestones. Continued project funding should then be made contingent on meeting those milestones.

2. GIRoA should implement a focused, long-term, public information campaign to better inform the public regarding realistic expectations for growth and revenue from the extractives sector. Such a campaign should also inform the public of what Afghanistan must do to develop national expertise and policies for it to be a full partner with investors to promote growth in the sector.

MoMP's Administration & Management

Despite the issues undermining the Ministry's work and keeping it from meeting its commitments under SGGA, the ET recommends that USAID-based assistance to MoMP be continued. The MoMP fulfills several key roles in Afghanistan's economy, and withdrawing support for the Ministry has the potential to further weaken or even force the shutdown of MoMP, leaving it unable to carry out these responsibilities. For instance, MoMP is GIRoA's natural resource management agency, and not supporting the Ministry might leave this critical role unfilled. Furthermore, given the lack of critical extractives management skills elsewhere in GIRoA, it would be difficult for another agency or even the President's Office to take over MoMP's functions.

Not supporting MoMP would also cut off crucial sources of potential revenue for GIRoA, as the ET believes that a promising source of revenue stems from the Ministry's collection of income taxes generated from mine worker income as well as taxes from the mine profits of secondary industries.

Furthermore, KIIs indicate that the individuals who have left MoMP due to HR challenges possessed strong capacity, meaning that the skills needed within the Ministry could be available again. Thus, targeted, USAID-based capacity-building assistance can aid MoMP and its SOEs. This support should be linked to measurable performance improvements at both the employee and ministry levels as well as to individual performance incentives.

The initiatives highlighted throughout this document will have to be supported by donor agencies. Based on the ET's experience in extractives, the international private sector will not provide this support and will not come to Afghanistan if the government is not prepared to administer and support extractives contracts. Supporting the extractives sector will also help achieve USAID's focus on creating a stable, economically self-sustaining Afghanistan, and will help to make Afghanistan an attractive destination for US business interests.

Following this, the ET's specific recommendations include the following:

1. MoMP needs to finalize and formally adopt a long-term strategic plan, which is then widely published to lessen operational disruptions caused by the constantly changing senior management.
2. USAID should continue capacity building at MoMP both for basic HR management and budget/finance administration and for needed technical skills. For example, support to current in-house information technology (IT) software development efforts could yield quick returns inexpensively. Capacity-building assistance should be linked to measurable performance improvements at the employee and ministry levels as well as to individual performance incentives to better retain high-capacity staff.
3. Additionally, in the extractives sector, field skills are critical, and security is a major concern. Extensive third country training opportunities are currently essential and should be provided to build critically-needed field skills.

4. USAID should retain the services of an HR consultant to help MoMP institute a system of rewards and disincentives that encourage MoMP staff to improve their work performance.
5. USAID should provide MoMP with budget management training.

Results Metrics

1. USAID should discontinue the use of less significant, process-based contract performance measures and replace them with more meaningful, verifiable measures, such as skills acquired as a result of SGGA trainings. While such metrics are more difficult to administer, they are better determinants of progress toward project goals and of the effectiveness of the intervention. USAID should utilize such metrics in future capacity-building programs in this sector. Examples would include:
    a. When an employee receives training, are they able to perform the task at the end of the exercise?
    b. How many people meet the minimum passing grade?
    c. When administrative tasks are evaluated, how long does it take MoMP to process the required paperwork?

QUESTION 2

Are the deliverable documents drafted by SGGA -- contracts, regulations/laws and procedures- still relevant or outdated?

FINDINGS AND CONCLUSIONS

Findings: A primary objective of the SGGA and SGDP efforts was to help MoMP promote the development of Afghanistan's hydrocarbon sector. To this end, SGGA retained industry experts to summarize for MoMP the international technical and financial requirements to develop hydrocarbon fields and industries utilizing gas, and reviewed GIRoA legal and regulatory/procedural requirements for any company considering investment in the sector. All SGGA documents not containing privileged or confidential information were relevant as of the time of this study to GIRoA and potential investors. Though technological processes in the hydrocarbon sector are constantly evolving, the basic blueprints provided by SGGA for gas transmission requirements, midstream processing options, and downstream utilization options are valid as of the evaluation. The deliverables that describe the laws and procedures to be followed in order to comply with Afghan law are also valid as of the date of this report. Detailed assessments of each deliverable document and its long-term applicability are provided in Annex VII: Document Relevance Table.

Conclusions: The SGGA deliverable documents were (mostly) valid as of the date of this report. The SGGA monthly, quarterly, and annual reports provide insights into the issues likely to arise when interacting with MoMP. SGGA technical documents provide a review of the industrial infrastructure investors will need to develop to provide gas processing and utilization capacity, and they also provide an overview of the laws that govern investments and procedures for doing business in Afghanistan. These documents should be available to the public. The PPP tender document is confidential and should not be released. SGGA administrative documents are dated and no longer relevant. The "Energy Hub"

document[11] (AEAI, July 21, 2016) did not reference the critical water use law nor other potentially important laws like the banking and corporate laws. However, it is otherwise a very useful document for anyone researching the legal and administrative requirements for investing in Afghanistan.

RECOMMENDATIONS

Based on its findings and conclusions from the review of these documents, the ET makes the following recommendations:

1. SGGA's administrative, activity-support, capacity-building-and-transfer, and technical documents should be made available to the public (web-based).
2. In addition to making these documents public, USAID should also highlight and promote specific categories of documents or individual reports for their value to potential future investors in Afghanistan. Key examples of these include the following:[12]
    a. Environmental Scoping Study (Final Environmental Terms of Reference for Environmental Assessment/Evaluation) (January 22, 2013) – A good compilation of National Environment Protection Agency (NEPA) and international requirements for Environmental and Social Impact Assessment (ESIA) studies; it will also prove valuable in reducing planning and preparation costs for future investors needing to comply with NEPA requirements.
    b. The "Energy Hub" document (AEAI, July 21, 2016) – Useful for anyone researching the legal and administrative requirements for investing in Afghanistan.
    c. SGGA's periodic reports (weekly, monthly, quarterly, annual and final) – Useful for future MoMP partners for the lessons learned in program planning.
3. SGGA contractor Baker Botts' PPP tender is a very detailed bidding document for a proposed PPP between the GIRoA and a potential partner. The ET recommends that the document itself remain confidential, but the review of possible PPP structures should be made public.
4. Expert guidance from a qualified Afghan lawyer is advised to guide businesses through the registration process and, more importantly, keep them in compliance with relevant operating laws and regulations.

QUESTION 3

What evidence is there of increased capacity in MoMP/GOA? What factors threaten or support the retention of capacity gains at the organizational level?

FINDINGS AND CONCLUSIONS

Despite more than a decade of capacity building, the ET found that MoMP is still struggling to function like a modern administrator of a national extractives sector. Key findings include that the existing civil service system favors retention of older, less knowledgeable staff who are committed to the SOE approach and ignore the system's failings. Civil service employees also feel threatened by the better paid and more

[11] Feasibility Study and Preliminary Planning Proposal for Creation of an "Energy Park" Located on the Present Site of the Gerquduq Facility.

[12] A full table explaining the relevance and utility of 25 SGGA documents and categories of documents provided to the ET can be found in Annex VII.

knowledgeable MoMP contract employees and work actively to undermine and ultimately remove these staffers. Constant changes in Ministry leadership foster employment uncertainty, and interviewees report that there was significant acceleration in the removal of contract employees during the turmoil after Minister Shahrani's departure.

Staff Capabilities

Findings: SGGA compiled a capabilities assessment of the Sheberghan staff finding that some engineers are unable to read or write Dari or Pashto and do not understand basic physics or math concepts. An unreported number of AGE staff were offered the opportunity to participate in OSHA distance learning – a 192-hour Oil & Gas Safety & Health Manager training and a 70-hour Oil & Gas Safety & Health Train-the-Trainer course. Only four engineers were able to complete the courses. At least five dropped out due to failing grades or other issues. This low level of matriculation is worrisome, given the fact that all training materials had been translated into Dari for a more or less 'self-paced' course. As reported in a 2016 study, "The AGE has 950 employees and contractors, and employee profiles consist of an aging group of senior employees with little general management qualifications, but overall the ratio of formal qualifications and industry-specific expertise is extremely low (UNICOM, November 14, 2016)."

Human Resource Capacity Challenges

"AEAI brought consultants with very poor knowledge, and ...[brought] truck drivers to be petroleum engineers in Afghanistan".

-SGGA KIs

This HR skills problem is exacerbated by the fact that AGE and other critical elements of the Afghan extractives management are headquartered in remote parts of the country near to their operations centers, but far from Kabul headquarters information flow and decision making. The ET's document reviews and KIIs revealed that these outposts are largely ignored and receive few of the training opportunities offered to Kabul staff (hence, the request for basic computer training by Sheberghan staff interviewed by the ET). Compared to other technical divisions within MoMP, AGE (and North Coal Enterprise (NCE)) have received considerably fewer capacity-building interventions than other parts of MoMP.

Conclusions: Based on its EQ3 findings, the ET concluded that there has been little growth in the capacity of the MoMP, owing to lack of access to training (due to the remote location of key MoMP field Directorates), low training participation and completion rates (due to MoMP staff and leadership's reluctance to engage), and the inability of MoMP to retain the small percentage of staff who do proactively seek training and demonstrate increased capacity.

Training Design and Content

Findings: Though detailed course curricula were not provided by SGGA, the ET reviewed the study topics and training duration for many of the technical hydrocarbon-related courses offered under this project (see Annex XI for a partial list of trainings compiled by the ET[13]). As the annex shows, many of these

[13] The ET requested but did not receive a complete list of trainings offered through SGGA to beneficiaries during the life of the project. The ET compiled Annex XI based on its review of SGGA weekly and monthly reports, and other project documents. Details of the trainings (e.g., dates, number of participants) were provided if they were available in the reviewed documents.

courses were taught for several hours per week for periods longer than a year. The subject matter seemed equivalent to what would be expected in a sophomore-level university course taught to undergraduate petroleum engineers. Additionally, the ET determined that the majority of course materials made available are accurate and sufficiently detailed. However, MoMP interviewees state that the information in these materials was little more than a summary of data available from the internet, that the SGGA (and MIDAS) training was too short,[14] and that it was presented by individuals unqualified to teach it. Many from MoMP complained that training offerings were irrelevant. Notably, SGGA monthly reports stated that the converse was also heard, with numerous AGE staff complaining that the OSHA courses were too long and not relevant to their needs.[15] According to them, extensive English language training, though useful, does not improve petroleum engineering skills.

Interviewees for both SGGA and MIDAS report that unlike TFBSO, which embedded highly-qualified staff directly within the Ministry to work hand-in-hand with their MoMP counterparts, SGGA provided less-qualified SGGA consultants who only occasionally came to MoMP and typically worked separate from and in parallel with their counterparts. SGGA KIs noted that "AEAI brought consultants with very poor knowledge," and that it "...[brought] truck drivers to be petroleum engineers in Afghanistan." MoMP interviewees that interacted with SGGA professionally stated consistently that SGGA project staff were unwilling to deliver many of the program support needs identified as necessary by MoMP. Some support needs were explicitly part of the contract while others were not. However, because of communication failures within MoMP and its different Directorates, many of the low-level KIs interviewed by the team had no understanding of SGGA's specific contractual requirements. As a result, they concluded that SGGA and USAID were not responsive to MoMP needs.

Monthly reports indicate that AGE/Oil and Gas Survey (OGS) leadership routinely demanded that training venues be moved to international locations, even if an international location was irrelevant to the subject matter. The reports also note that these requests were not accommodated, much to the dissatisfaction of the PM.

The ET found that classroom-based trainings were provided without associated practical field or hands-on experience, which reduced the effectiveness of these capacity-building trainings. For example, TPAO's unwillingness to cooperate with SGGA project efforts is responsible for many missed opportunities to provide hands-on field experience – yet MoMP had the contractual authority to compel TPAO to allow trainers and trainees on their drill rigs. The MoMP PM for SGDP declined to enforce this requirement, resulting in the loss of a low-cost opportunity for specialty training that is otherwise only available internationally. This occurred despite SGGA's explanation that this would have been appropriate based on international best practices.

Inter-Directorate and intra-Directorate rivalries undermined training and its replication elsewhere within MoMP. For example, MoMP leadership would undermine implementation of planned training activities by making training facilities unavailable for trainees from other Directorates. Monthly reports indicate that staff seniority 'rules' frequently contributed to the selection of unqualified and otherwise inappropriate trainees.

[14] Similar findings were identified among interviewees for the MIDAS project evaluation (see Hagan et al., 2017).
[15] However, to put this complaint into perspective, OSHA training is regarded as the gold standard in oil rig health and safety training. Rig safety staff are not employable in the US oil industry without certification in this training.

Conclusions: In the absence of HR rewards or penalties, MoMP staff have no real motivation to complete training successfully or for self-learning initiatives. Only the most motivated among the staff are reported to take the training seriously and then soon leave for better paying opportunities in the private sector.

The large gap identified between MoMP's perceptions of the TFBSO versus SGGA is almost certainly due to differences in contract structures between the two organizations. TFBSO contracts allowed contractors to deliver advice and support to MoMP as needed, whereas USAID contracts are highly constrained, holding the contractor responsible for set deliverables on a specific schedule.

Continuing Education as a Core Component of Work

Findings: Without exception, every interviewee told the ET that SGGA did not provide necessary hands-on on-the-job training (OJT), but instead simply did the work of the Ministry for them.[16] However, AEAI monthly reports indicated that SGGA staff continuously coached MoMP staff and provided OJT, yet also report that MoMP staff routinely refused to listen or learn from SGGA coaches. Interestingly, at least one Directorate head was convinced that SGGA was a contract employee of MoMP, and that SGGA was required to undertake routine Directorate work for them.

The ET found no evidence that interviewed MoMP staff accepted responsibility for ongoing MoMP or self-initiated efforts to learn and improve their technical skills and government processes. SGGA also reports that they have encountered instances of MoMP department directors forbidding its staff from consulting with SGGA on NEPA permitting applications to prevent anyone from learning that no one in the Directorate had the skill necessary to complete required reporting.

As reported by interviewed staff and indicated in SGGA's monthly reports, MoMP lacks the HR tools and administrative policy to compel or incentivize its staff to take advantage of the learning opportunities presented to them by the donor community or other free sources. Similarly, MoMP's management does not have the authority to properly reward staff who are high learners and achievers.

Conclusions: Based on its findings, the ET concludes that most MoMP Directorate heads are not advocates for an ongoing learning environment, nor supportive of individual continuing education. In September 2014, SGGA reported that "AGS [Afghanistan Geological Survey] training commencement experienced delays due to an AGS employee strike from all trainings during July [due to issues related to per diem payments], and lacking training room availability in August [due to AGS Acting Director not making them available]."

The leadership's stance on training has also directly contributed to a paucity of skills among MoMP- and self-selected trainees and staff in key technical and language areas, and to instances of staff strongly purporting to have subject matter knowledge despite its obvious absence. "SGGA's gas processing specialist assessed the students and noted that while the trainees identify themselves as engineers, most lack knowledge of basic engineering concepts such as pressure, temperature, volume, and engineering units, basic mathematics, physics and chemistry." Some also lacked the ability to write notes in either Dari or Pashto, making instruction extremely difficult.

Given the reported instances of unqualified staff (e.g. Dari to English translators that cannot speak, read or write English and petroleum engineers who don't know the relationship between temperature and

[16] MIDAS experienced similar issues.

pressure), the ET has concluded that MoMP HR policies must be improved to help retain qualified and trained staff and limit recruitment to only qualified staff.

KII interviewees at Afghanistan Petroleum Authority (APA) report that long-term overseas education programs do not result in the MoMP's improved access to needed technical and administrative or management skills.[17]

Departure of Trained Staff

Findings: While there was a good-faith effort at one point in the life of SGGA by MoMP's leadership to strengthen its capacity, the ET found that this was undermined by inflexible internal policies and proved short-lived after the leadership changed. Minister Shahrani, who led MoMP from 2009 to 2013 until he resigned to run unsuccessfully for the Vice Presidency in the 2014 elections, attempted to address MoMP skills shortages by bringing highly competent technical and administrative staff into MoMP at higher compensation levels. However, the ET found as part of its document review that MoMP HR requirements dictated that these staff be hired on annual contracts. Additionally, since the departure of Minister Shahrani, this system has been rapidly dismantled under urging from low paid but permanent civil service staff who may be threatened by this new arrangement. Numerous SGGA monthly reports refer to recurring layoff events at MoMP. KIIs suggest that few of the MoMP staff who actively participated in SGGA have remained with MoMP since the former Minister stepped down. Interviewed former-SGGA staff who had been trained by SGGA, for the most part, reported their inability to utilize their newly acquired skills as a key contributing reason for their departure because AGE was not actively participating in the modern hydrocarbons sector.

Conclusions: The unwinding of Minister Shahrani's effort to improve skills and capabilities within MoMP by his successors' efforts to lay off younger, better skilled, and more motivated contract staff has allowed entrenched patronage systems to remain intact. The layoffs also removed many of the most capable individuals trained by SGGA and other donors from MoMP service. The reported wide scale loss of skilled MoMP staff raises questions regarding the sustainability of training programs.

Constrained Inflow of Needed Skills

Findings: MoMP staff agree that new university graduates do not have the skills necessary to work for MoMP.[18] "The MoMP must depend upon local (graduates) for knowledge and skills…but [those skills] are not there," said one interviewed MoMP director. Interviewed MoMP directors suggested that donor supported year-long internships is one way to prepare new graduates for MoMP employment. Interviewed MoMP leaders stated that providing overseas education opportunities to Afghans is counterproductive, because when these students return they are unwilling to work for the salaries offered by the government and feel entitled due to their "superior educational status." MoMP leadership also suggested that improving the quality of education in Afghanistan is the key to improving MoMP staff capabilities over the long-term.

[17] Students trained overseas are regarded as being "uppity" by MoMP staff because they are perceived to flaunt their educational achievements and expect higher compensation for their skills.

[18] The skills outlined by the ET in response to EQ 4.5 ("What roles are necessary to exploit natural gas deposits?") provide general guidance on some of the skills/knowledge that would be relevant for work in hydrocarbons sector in Afghanistan.

Most Afghan universities are modeled on the Soviet system and their older faculty are Soviet educated. Analysis of university course offerings and discussions with university faculty indicate that courses focusing on free-market concepts and models are not receiving their needed attention in the classroom. Continued instruction and reliance on SOE models of development in Afghanistan are not likely to result in graduates with effective, much less innovative, approaches for Afghanistan's future.

As reported by SGGA in monthly reports, an additional factor undermining MoMP's capacity-building efforts is linked to its poor budgeting practices.[19] Specifically, when MoMP needs to balance its budget at the end of the year, it lays off trained staff and, when budgets are again adequate, replaces lost staff with new individuals that do not meet basic MoMP hiring requirements. SGGA staff reported that MoMP takes the approach that donors will train these new staff as well.

Conclusions: For technical disciplines, Afghan universities are not currently up to the task. Reviews of the available curricula of the main government-run universities in Kabul indicate that critical technical capabilities are lacking. ET interactions with university teachers indicate that enough older faculty remain to continue reinforcing a SOE approach to extractives. Donor support for Afghan-based alternative educational options like University of Nebraska – Omaha Kabul Campus or the American University may be a more viable option that includes the development of technical faculties at these institutions. Competency based admissions with a yearly freshman to senior curriculum improvement effort at Afghan's engineering colleges may help to establish a system that starts generating the skill base needed for extractives sector economic and engineering management in Afghanistan.

RECOMMENDATIONS

Based on its findings and conclusions under EQ3, the ET developed the following recommendations:

<u>Augmenting staff capabilities, encouraging continuing education as a core component of work, and strengthening retention of trained staff</u>

1. Because one of the key impediments to capacity improvement is an HR system that rewards patronage over capability, USAID should:
    a. Continue to stress the need for a merit-based HR system and strictly object to any patronage system in any new programs it supports in the future.
    b. Set aside some portion of the MoMP budget, which is currently heavily subsidized by donor contributions. This money should then be used specifically to support career pathway programs that reward active, highly qualified individuals with promotions and increased salaries based on their demonstrated ability to successfully meet predetermined, measurable, and independently verifiable promotion goals.
2. Some donors are reporting success in more aggressively holding Ministries accountable for performance and compliance with in-kind agreements by linking disbursements to tangible performance changes within the Ministry. Therefore, USAID should:
    a. Consistently link disbursements to tangible performance.

[19] See EQ1's Findings ("MoMP's Administration and Management" sub-section) for more on this.

b. Closely work with sector donors and help coordinate their support to the sector to reduce opportunities for "donor shopping".

Addressing constraints on inflows of needed skills, and training design & content

1. Improving faculty qualifications and instilling a stronger emphasis on free market approaches will result in an improved quality of technical training and additionally is likely to result in the wide dissemination of realistic effective economic models for growth in Afghanistan's extractives sector.
    a. The capabilities of faculty in existing universities must be augmented. Several strategies are possible:
        i. Require technical specialists working on USAID projects to also participate, as part of their contract assignment, as university faculty.
        ii. Explore professional organizations that can identify industry retirees that might be interested in serving as university faculty along the lines of the Colorado School of Mines Professor-of-Practice program—with special attention to female instructors.
        iii. Though more difficult, look to establish cooperative programs with US universities that might consider rotating faculty to selected Afghan universities.
        iv. Returning, highly qualified western educated Afghans could be preferentially hired into Afghan universities to increase student exposure to western approaches. A career-path salary subsidy could make this attractive to more returning Fulbright Scholars, for example.
    b. Alternatively, supporting improvements in targeted non-state universities like American University, or the Kabul Campus of the University of Nebraska, Omaha could establish centers of excellence that would force state run universities to improve in order to stay competitive. Offering competitive scholarships to the most qualified Afghans to attend these private institutions will make it possible for poorer Afghans to attend and will ensure that trained Afghans will be more likely to remain in-country.
    c. USAID could support the introduction of certified e-learning programs, which use online photo student verification for related coursework that is selected from a wide range of available technical coursework from Coursera and others. Students verified as having completed agreed university classes and e-learning subject modules could then be supported to participate in co-op programs with local private sector extractive companies to give them the experience needed for possible employment with MoMP. The on-line component of this approach can be viewed as both gender-friendly and pro-poor given its expected low extra cost to students.
2. Geology is a field science. Adequate training in certain aspects of the discipline requires extensive hands-on experiences in real field settings. Since security conditions limit such training in Afghanistan, extended third country training experiences are critical, and provisions to accommodate these needs must be added to programs at inception.

QUESTION 4

What obstacles prohibit the exploitation of natural gas deposits in Afghanistan? (Systems Analysis)[20]

Systems Analysis has many synonyms in the petroleum industry. A brief overview of the approach that most oil companies take in assessing any oilfield development project can be viewed in Schlumberger (2017). As this overview shows, there are numerous separate analytical assessments conducted during the development decision making process - environmental impact, geophysics, geology, reservoir and production engineering, infrastructure, well design and construction, completion design, surface facilities, and economics and risk assessment. Each of these decision components has their own sub-system analytics typically carried out by specialist expert teams and often contracted out to specialist companies. Ultimately a systems analysis has two objectives: (1) to determine if there is sufficient hydrocarbon to be worth exploiting; and (2) to determine if the hydrocarbon can be exploited at a profit. The second decision point is the most critical. There are many hydrocarbon fields across the globe that are not being developed because the economics are not permissible.

FINDINGS AND CONCLUSIONS

4.1: What resources (inputs) are necessary to exploit natural gas deposits and are these available locally?

Hydrocarbon production in the private sector is driven by the need to maximize exploration and production success, minimize operational costs, maximize operational safety and efficiency, and maximize profit to maintain the incentive to participate. The importance of these fundamental industry concepts is evidenced by the world's major oil-services companies whose primary sales pitch to the industry is that they are dedicated to maximizing oil company profits and reducing their costs (see Baker Hughes, 2017; Halliburton, 2017; Schlumberger, 2017). These factors are critical to economic survival of the enterprise when commodity prices are low, like they are at the time of this report.

The following investment conditions are necessary to exploit natural gas deposits:

- Exploration/production contracts must be sufficiently attractive to outside investors to incentivize them to risk investing in Afghanistan instead of more secure and legally developed alternative (and competing) investment destinations.
- Hydrocarbons must be saleable at prevailing market rates. Selling gas at subsidized rates, and especially at the massively subsidized rates required by the GIRoA, makes it impossible to recover the costs associated with exploration (see Lerche and Noeth, 2004; AEAI, May 14, 2013).
- The domestic market should be opened to competition. Protectionism on the part of GIRoA very negatively impacted nascent downstream business development opportunities.

[20] Numerous consultants have been retained by donors to help Afghanistan develop its hydrocarbon economy, and several private sector companies have expressed interest in exploring for hydrocarbons. The ET solicited eleven KIIs from among these two groups but received only two responses. No reasons were given by those who chose not to participate. Based on the two KIIs, KIIs with MoMP staff, and a review of SGGA documents, MoMP and GIRoA do not seem to understand the economics of the hydrocarbon sector and do not have the internal capability to negotiate workable development agreements. The reasons for these failures are outlined in detail in this section.

These conditions currently do not exist in Afghanistan. Afghan gas must be sold at international market rates. The enormous gas price subsidies that GIRoA imposes on AGE deprives AGE of operating cash to the point that they can't properly maintain their equipment, thereby accelerating reservoir depletion because of gas leakage from processing and transmission facilities. As an SOE, AGE cannot afford to replace aging, inefficient equipment that consumes significantly more gas than necessary per unit output. Foreign exploration and development companies need to be attracted to the sector, but the GIRoA's insistence on capturing the commodity value of its gas reserves makes development contracts unattractive to investors, especially given the security conditions and added investment costs imposed by Afghanistan's landlocked geography. At bid evaluation, realistic bids from experienced companies are deemed too low, and the government accepts less qualified bidders that offer higher commodity value. The end result is an endless number of mostly non-performing extractives contracts. The ET concludes that unless MoMP/AGE shifts from an SOE-based approach to gas development to one that fully includes real economics without barriers to public-private partnerships, private sector investment in and exploration of Afghanistan's natural gas deposits will continue to be undermined.

To be able to exploit hydrocarbon deposits, a company needs the exploration tools (remote sensing data collection like seismic, gravity, etc.) to be able to target locations for exploration, drills and drilling supplies (bits, muds, drill rods, casing pipe among many other supplies) to drill a test/production well, the ability to build the infrastructure to take the gas to a processing plant, and the ability to distribute the product to end users.[21]

As the review of the SGGA deliverables verifies, Afghanistan has few of the inputs required to exploit its gas deposits. GIRoA expects its SOE to operate along the lines of a small version of Saudi Aramco, the world's premier vertically integrated hydrocarbon SOE. But, given limited operating cash and needless bureaucracy, AGE risks collapse when its reserves are depleted in the near to mid-term.

AGE could conceivably continue to operate in its present form by hiring contract exploration specialists, drillers, possibly even processing plant builders and managers, but AGE currently does not have access to even a fraction of the cash needed to purchase these services. The SGDP-on-budget-funded TPAO activity also demonstrates that AGE does not have the contract management skills envisioned by both SGGA and SGDP to administer these service contracts effectively.

[21] The IFP School (2014) review of Hydrocarbon Exploration provides a concise overview of the exploration process with links to links for more information about specific components.

4.2: To what extent do the rules (laws, regulations, or procedures) support or prohibit exploiting natural gas deposits?

Review of the existing Afghan Hydrocarbon Law and PPP Law indicates that if they are consistently and uniformly implemented, they can permit natural gas exploration. The GIRoA should give increased attention to an understanding of its own laws and consistently and uniformly adhere to them when dealing with investors. Apparent random reinterpretation and selective application of the written law discourages investors, as does a government bureaucracy perceived as excessive. One Chief Executive Officer (CEO) considering investing in Afghanistan's extractives sector described his experience in the adjacent text box.

> *"…the rules seem to change weekly: MoMP minister has to approve; no, now only President can approve; no, he can only review it; then this advisor needs to approve; oh no, you have to get this other Minister to review it first; no, have them review it second, then come back here; oh no, not here, that other Minister to approve; oh wait, we have a 5 day holiday no decisions or meeting until next month; see the Deputy Minister next month; now you must get this license; no, we can't award you this project it has to be tendered; no the minister of MoMP has to review it; and the president; and this office; no, we are on holiday for x days; do you have a business license?"*
>
> – **Key Informant Interview response to EQ4**

This interpretation is confirmed by SGGA in their analysis of the outcome of the December 2014 Gas to Power Symposium. SGGA states "The lack of effective Afghan government engagement prevents these projects from moving forward. Multiple investors have submitted proposals to the Afghan government, but in each case GIRoA has failed to provide an appropriate response."

The Afghan Government does not seem to appreciate the inherent risks associated with wildcat exploration, i.e., exploration in areas with no known resources. GIRoA insists that every exploration contract be tendered, even though many of its exploration properties are, by their very nature, un-tenderable. Afghan laws and innovative thinking on the part of GIRoA can provide for viable strategies to encourage private investors, but the GIRoA does not endorse the economic basis of many such proposals and rejects them claiming, inaccurately, that they violate Afghan law. The GIRoA's inability to uniformly implement its own legal framework is evidenced by the MoMP's reaction to the collapse of the TPAO bid for Totimaidan after USAID insistence that TPAO absorb some of the cost of drilling Juma/Bashikurd since it was included in the Totimaidan bid block. SGGA reports indicate that MoMP did not accept that there was an inherent conflict of interest in this arrangement.

4.3: What roles are necessary to exploit natural gas deposits, who fulfills these roles in Afghanistan and how well are they fulfilled?

As Schlumberger (2017) shows, many skills are needed to develop the hydrocarbon sector, among them:

- Experts familiar with the management of all aspects of exploration;
- Land agents to acquire rights to explore land;
- Environmental specialists;
- Skilled oil rig drillers, which are completely different from the kinds of rigs used in coal and mineral exploration;
- Specialized mechanics to keep high cost complex equipment maintained and running;
- Mud engineers to keep drilling fluids balanced;

- Engineers to build and maintain processing facilities;
- Engineers to build and maintain distribution infrastructure;
- Health and safety inspectors;
- Financial specialists to find ways to finance all of this and more; and
- Government institutions that create the necessary conditions to promote active development of extractives, like laws that favor development, a regulatory framework that allows the laws to be implemented and followed, a consistent interpretation of the laws, and a functioning cadastre registry that allows prospectors and investors to know where investment properties are located.

As reported earlier, some of the above skills are now provided by long-employed MoMP staff who function without the necessary knowledge or even the ability to read. They are not up to the task of operating a new modern system (see AEAI August 2014 Report). For its part, AGE lacks the technical and financial resources needed to find, develop, and process new reserves. Given the reported administration of the SGDP, AGE also lacks the basic skills needed to administer a modern contract. Afghanistan suffers from a critical shortage of trained and experienced professionals in essentially all labor categories. However, Afghanistan does have an abundance of individuals with peripheral knowledge who would gladly attempt the needed work. All of the hydrocarbons exploration and development expertise is currently foreign. To the degree that MoMP staff interact with these companies, they may acquire some OJT skills as a result of those interactions. The required institutional capabilities are lacking.

4.4: How do the relationships in the system support or prohibit exploiting natural gas deposits?

Despite more than a decade of capacity building, AGE and APA do not seem to have acquired the skills needed to promote a modern hydrocarbon sector. Current HR practices incentivize staff to maintain the status quo and provide disincentives for innovations. Managers' report little authority to manage their staff. MoMP does not currently have a system to motivate or reward staff for their efforts to develop the sector.

Although MoMP is the responsible agency, the ET found through its document review and KIIs that the operational segregation and de facto independence of its Directorates, as well as a general lack of inter-Directorate collaboration or information sharing, constrain initiatives and serve as barriers to private initiatives in the sector. The recent MoMP initiative to develop a 'road map' will hopefully give guidance for a consistent and focused future that is amenable to private sector initiatives—an initiative independently highlighted by interviewed private sector leaders as essential for their effective development efforts.

Corruption in the form of outright theft is unproven and uninvestigated but is routinely suggested during KIIs with the rank and file staff. Other forms of corruption are so endemic that they are not even recognized for what they are. For example, during KII interviews, several MoMP senior staff indicated that the failure of the Totimaidan bid by TPAO and partners was the fault of USAID and not due to the fact that USAID insisted on avoidance of conflict of interest by the bid team. SGGA monthly reports indicate that the issue of conflict of interest was discussed repeatedly with the SGDP PM, but the issue remained unacknowledged as a matter for concern. Accusations of corruption in the awarding of tenders and licenses are a common political weapon in Afghanistan. Most government officials fear these accusations, so they very narrowly interpret lease awards under the law and insist on tenders at all times.

The fear of corruption accusations (real and imagined), HR practices that incentivize the status quo, an MoMP that has little or no understanding of how the private sector functions, and a government that insists on capturing the commodity value of its resources have dramatically slowed the development of the hydrocarbon and mining sectors. The unrealistic extraction contract terms required by the Afghan Government and negotiated at a time of high commodity prices further slow development, because these contracts are no longer economically viable.

The reported often adversarial relationship between MoMP Directorates and other Ministries, with little collaboration or coordination, presents challenging procedural barriers to private sector initiatives for gas exploration.

4.5: Where is the demand for these results coming from and is there opposition to achieving these results?

The issue of corruption has not been investigated in AGE (but is widely reported as a reality by many interviewees). False accusations of corruption are used as political weapons against government officials. The ET discussions with KIs included observations that both Afghan society and government institutions sometimes view a successful development in one sector or location as a constraint on their own potential development, not as an improvement for all. GIRoA and MoMP do not seem to include the economic value of the extractives sector's jobs multiplier factor that benefits all in its valuation of initiatives and development planning.

KIIs with MoMP staff make it clear that MoMP believes that all of Afghanistan's natural resources are the property of the Afghan Government and that the Government itself should obtain as much of the commodity value as possible directly for its treasury. GIRoA tolerates private investment in its extractives sector because it has no other option, yet it has negotiated unrealistic exploration and production fee structures that serve as a 'poison pill' for their funding and operational development.

At some level, GIRoA and MoMP recognize that the private sector must be engaged in developing Afghanistan's natural resources, but the Government's actions indicate that it has not accepted the need to provide a real economic incentive, i.e. the expectation of significant profit to cover the real risk of investing in Afghanistan. The GIRoA struggles to understand that the real value of its extractives sector is in the jobs it creates, the secondary industries that the sector spawns, and the tax revenues that all of these activities generate. Currently, the GIRoA's exclusive focus is on capturing the commodity value directly. Development contracts are structured such that bid winners are, to the greatest degree possible, treated like contract prospectors with the additional expectation that these investors accept all the risk of development (with no guarantee of success) in exchange for access to the site and hopes for, at best, a minimal operating profit. No serious investor in the extractives sector would consider this deal.

MoMP has been essentially ineffective at promoting private sector investment. As KIIs confirm, all of Afghanistan's private sector extractives tenders are deeply troubled – Mes Aynak, Hajigak, Shiada, Balkhab, Zarkashan, Badakhshan, Totimaidan, Mazari Sharif, and Kashkari. GIRoA selects bid winners on the basis of the highest royalty/production sharing offer made without regard to actual ability to deliver on the contract. As a result, almost all of Afghanistan's extractives contracts are either non-performing or very seriously behind schedule.

RECOMMENDATIONS

4.1: What resources (inputs) are necessary to exploit natural gas deposits and are these available locally?

1. Because the Afghan Government does not currently have the financial resources needed to buy the equipment and supplies (or services) needed to conduct hydrocarbon exploration, it needs continued, long-term guidance to shift thinking away from the SOE development model toward policies strongly promoting private sector investment in extractives. The GIRoA also needs to be encouraged to tender its exploration properties to private sector companies that have the demonstrated financial and technical skills needed to conduct successful exploration and development projects.

   The ET believes that USAID is best situated to guide GIRoA in these paradigm shifts, as USAID not only has the ability to leverage the capabilities and expertise of other USG agencies for this effort but also has a focus on job creation, poverty alleviation, and economic stability in Afghanistan, all of which are positively impacted by the extractives sector.

2. GIRoA must be willing to write exploration and development contracts that offer enough profit incentive to attract qualified exploration and development companies.

3. MoMP should be encouraged to divest itself of AGE (and NCE), which is a distraction from MoMP's true mission. AGE can avoid operating efficiently because of MoMP's support; as an independent entity, it will be forced to stand on its own or collapse. If AGE does collapse, its collapse as an independent entity will limit collateral damage to MoMP. Alternatively, though AGE liabilities are crushing, if the AGE lease holdings are sufficiently large and unexplored, there is a small chance that AGE can be sold off to a private investor.

4.2: To what extent do the rules (laws, regulations, or procedures) support or prohibit exploiting natural gas deposits?

1. At the moment, the current laws, regulations and procedure are workable but are not consistently enforced or investor friendly. Since GIRoA does not currently have the financial resources to hire the services of a contract driller/deposit developer, it should negotiate exploration/development contracts without a primary focus on the capture of the commodity value of its extractives.

4.3: What roles are necessary to exploit natural gas deposits, who fulfills these roles in Afghanistan and how well are they fulfilled?

1. The Afghan Government does not currently have the financial resources needed to hire the technical specialists needed to conduct hydrocarbon exploration. USAID should encourage the GIRoA to tender its exploration properties to private sector companies that have demonstrated the financial backing and technical skills needed to conduct successful exploration and development projects.

4.4: How do the relationships in the system support or prohibit exploiting natural gas deposits?

1. There were numerous and major project implementation breakdowns that occurred because of an unwillingness to share information.[22] The MoMP should promote HR incentives that encourage cooperation, information sharing, and enforceable disincentives to discourage information hoarding.
2. USAID should support MoMP's in-house information management development efforts that utilize open source software to build a shared and open database for improved collaboration and management control.
3. Because data suppression could also be a manifestation of a range of corrupt practices, the GIRoA – supported by USAID or other donor agencies – should commission a careful analysis of gas production and distribution by MoMP/AGE to shed light on this possibility.

4.5: Where is the demand for these results coming from and is there opposition to achieving these results?

1. Data hoarding is one manifestation of the command-driven economic system for ensuring an individual's job security. GIRoA and MoMP should promote and enforce HR policies to reward more desirable behavior patterns.
2. MoMP should permit third party monitoring of daily production data to make it more difficult to misdirect resources.
3. USAID or other donor agencies should support repeated exposure to reminder trainings (study tours, economic workshops, etc.) for MoMP leadership and staff so that they observe again and again multiple perspectives on how free market extractives development benefits an economy more effectively than focusing exclusively on capturing commodity value.
4. USAID should support GIRoA to learn how to select qualified bidders, not necessarily the highest bidders. GIRoA should also be provided with expert advice to help them renegotiate non-performing contracts so that they conform to international best practice, and to help them restart negotiations based on international best practice at Hajigak, Balkhab, Badakhshan, Shaida, and Zarkashan so that development of these properties can begin as soon as possible under a workable contract.
5. The GIRoA may have previously misled the Afghan public about the true value of its extractives

[22] Specific examples of this are noted in the next section of this report pertaining to the McDaniel & Associates Gas Reserve Studies.

sector and how development will improve the economy, as the worth of minerals cannot be accurately forecasted[23]. The current GIRoA administration – with guidance from USAID or other donor agencies – should therefore commission a good, long-term public relations (PR) campaign to realign public thinking with reality.

QUESTION 5

Has the McDaniel & Associates Gas Reserve Studies of eight existing gas fields, including test results of two Juma Bashikurd gas wells—influenced the sector's development in Afghanistan? If so, how and why?

The McDaniel & Associates study is the kind of independent hydrocarbon reserve analysis that is required by anyone considering an investment in any aspect of hydrocarbon field development, including midstream projects like refineries and gas processing facilities and downstream projects like power and petrochemical plants. Studies of this type are usually commissioned early in the investment planning phase to determine whether or not sufficient hydrocarbon reserves are available to supply the planned investment(s). USAID should have conducted a study of this type prior to designing SGGA/SGDP, though given that it took years for MoMP to release a partial subset of the data that is required to conduct such an analysis, it is unlikely that a study could have been conducted in time to influence donor planning.

FINDINGS AND CONCLUSIONS

Findings: The McDaniel report exposed AGE/APA operational and administrative weaknesses. MoMP delayed providing SGGA with the data needed to carry out the study, used bureaucratic procedures to ensure that the data sets were incomplete, and did not insist that TPAO properly test the gas content of the Juma/Bashikurd well. According to the April 2014 SGGA monthly report, "APA's Technical Director … revealed historical information that possibly indicates that twinning Juma well #2 does not provide the optimum well choice due to the water tables. SGGA does not have knowledge as to why … withheld this historical information for the three years that the contract specifications have existed."

Additionally, in October 2014, SGGA indicated that "The APA Technical Office is resisting the study, apparently seeing it as a threat to their monopoly on information and expertise," and in April 2016 "SGGA learned that the MoMP units intentionally or unintentionally withheld well field production data from SGGA despite Minister's' Directives to provide all data (specifically including production data)." The HR inadequacies noted above were highlighted when MoMP/AGE staff were not held accountable for their refusal to follow direct orders from superiors to release these data.

The data made available suggested that AGE was not collecting the kind of information needed to complete an independent assessment of gas reserves. AEAI's monthly reports highlight AGE's lack of appreciation for the importance of an independent reserve estimate to assure that there were adequate gas supplies to support downstream users and that such a report was required by financiers before they would commit to downstream project financing. AGE staff did not seem to appreciate that the Hill (2004) and Gustavson (2005) reports were based on 30-year-old Soviet data, augmented with assumptions about AGE

[23] Considerations around public communication of the worth of the extractive sector relates to a number of public statements by the former President and Minister from 2010 onwards and is also noted in the MIDAS report (2017).

production since the Soviets left and based upon less production history and reservoir pressure data than were available to McDaniel.

The claim made by MoMP that the same data were provided to all three assessment teams is inaccurate. MoMP's reaction to the difference in the findings suggests that AGE does not fully understand that individual gas reservoirs are finite resources and that 12 years of partially-metered consumption between the Hill (2004) and McDaniel (2016) reports may have significantly depleted the remaining gas reserves. The significant discrepancies between Hill (2004) and McDaniel (2016) could also be an indication the gas production is being underreported to MoMP headquarters. Rather than explain all these possibilities to GIRoA leadership, MoMP chose to claim that McDaniel was wrong. MoMP has not yet offered evidence to substantiate this claim.

The McDaniel report revealed that the producing Sheberghan gas fields are mostly depleted and that the downstream uses planned for the gas from those specific reservoirs can never be realized. The report also shows that in the near future, AGE's existing gas reserves might be depleted. Indeed, the pressure of declining gas production has resulted in a decrease in AGE's residential gas supply network; what gas AGE has been able to supply was reported to be poisonous sour gas. Furthermore, NFPP reported receiving less gas than it is capable of consuming. The consequence of this limited supply is that in the near future AGE will be unable to meet the demands of its largest customer, the NFPP. GIRoA and MoMP will be obligated to place a higher priority on collaboration with the private sector for the development of new gas fields if they are serious about providing sufficient gas to power IPPs.

Conclusions: The McDaniel report exposed numerous weaknesses within AGE, among them:

- AGE does not have adequate gas reserves to supply current customers. It cannot supply new industrial users even though the Afghan Government has signed numerous MOUs with IPPs committing gas to power their proposed facilities.
- AGE does not seem to fully appreciate why it has little gas left and did not or could not explain to national leadership the basis of the McDaniel findings, preferring instead to blame McDaniel for conducting a faulty analysis, but completely ignoring the fact that MoMP/AGE declined to provide much of the relevant data.
- Management inadequacies (data and human capital) squandered an opportunity to possibly expand gas reserves when AGE refused to insist that TPAO perform acid stimulation on the Juma/Bashikurd well.
- There are reported issues of technical staff within MoMP hoarding their data. Maintaining exclusive control of a skill, a portion of organizational knowledge, or access to data makes the holder less expendable for an organization.

The results of the McDaniel study indicate that the development of secondary industries cannot be supported by the existing AGE gas reserves. New users will have to be supplied by new discoveries by private sector drillers. However, all the bid winners at the time this evaluation was conducted are struggling to meet the production targets specified in their contracts, which means that it will likely be some time before sufficient gas reserves are made available to fuel these additional users. New supplies are likely to come from fields farther away from Sheberghan, so planned transmission infrastructure and plant locations may need revision.

The extreme difficulty in acquiring the production data needed by McDaniel suggests the possibility that there were alternative reasons why access to such comprehensive datasets was made so difficult. As early as September 2014 SGGA "concluded that some APA staff have withheld information necessary to support reservoir studies."

The McDaniel report shows that AGE will struggle to remain viable with its existing reserves nearly depleted, infrastructure deteriorating, inadequate cash flow to operate, and potentially significant medical liabilities associated with its delivery of sour gas to residential users. The Afghan Government may not have timely access to the financial resources needed to revitalize AGE. Similarly, AGE does not have much of value that could attract a potential privatization, especially given the possible medical liabilities. One AGE asset that may be of interest to an outside investor is AGE's exploration lease holdings. Although the existing gas fields appear to be mostly depleted and there does not appear to be much potential for deeper (and more sour-gas) Jurassic reserves in those fields, if the AGE lease holding is large enough, it may contain sufficient new exploration targets to attract new investment.

RECOMMENDATIONS

1. The extent of the need to find new oil and gas reserves cannot be overstated. Thus, the GIRoA must adopt – or be encouraged to adopt by USAID and other international agencies – policies in the oil and gas sector that incentivize exploration lease holders to accelerate their exploration efforts. This may include improved lease terms or amended profit sharing agreements.
    a. Since one cannot be assured that MoMP will provide new or more accurate data, redoing the McDaniel report due to its findings would not likely be useful and is therefore not recommended.
2. In order to more effectively track the private bidding process as well as ongoing exploration efforts, GIRoA must be offered an incentive structure by its private and/or external government partners (to wit, the US and other international donors) to develop a transparent oversight process for all oil and gas sector activities. This will have the added benefit of assisting the GIRoA in choosing effective private sector partners, and clear selection criteria will likely make bidding more attractive to well-established firms that are able to conduct rapid and large-scale oil and gas exploration.
    a. Incentives for the government of Afghanistan should include tying additional aid funds to MoMP staff's operational training, limiting staff turnover, and the Ministry passing through an external audit of existing organizational systems and practices. The audit in particular will help determine why or how data gaps occurred between the various gas reserve studies conducted since 2004 and highlight measures to prevent its recurrence.
    b. This can be complemented by working with MoMP to establish an internal reward structure that incentivizes inter-Directorate cooperation and the sharing of both information and resources. Given that MoMP salary structures as well as its regular lay-off cycles are a major disincentive to share and cooperate, reworking MoMP human resource practices will be necessary.

ANNEX I. EVALUATION STATEMENT OF WORK

Office of Infrastructure (OI)
&
OFFICE OF PROGRAM AND PROJECT DEVELOPMENT (OPPD)

STATEMENT OF WORK

EX Post Performance Evaluation
OF
Sheberghan Gas Generation Activity

I. PROGRAM INFORMATION

Program/Project Name:	*Sheberghan Gas Generation Activity [SGGA]*
Contractor:	*Advanced Engineering Associates International [AEAI]*
Contract #:	AID-306-TO-12-00002
Total Estimated Cost:	*$30,440,958*
Life of Program/Project:	*December 2012 – July 2016*
Active Provinces:	*Kabul and Jowzjan provinces*
Mission Development Objective (DO):	*DO 1: Sustainable Agricultural-led Economic Growth Expanded* *IR 1.1 Employment Opportunities Increased* *Sub IR 1.1.1 Access to Electricity Increase*
Linkage to Standard Program Structure (SPS):	*Program Area 4.4 Infrastructure* *Program element 4.4.1 Modern Energy Services* *Sub-element* *4.4.1.1 Basic Energy Infra project financing.* *4.4.1.2 Legal and regulatory development energy sector restructuring and corporatization.* *4.4.1.7 Privatization and private investment promotion*
Required?	*Yes.*

II. INTRODUCTION

Prior to 2012, substantial reserves of natural gas were believed to exist near the town of Sheberghan in northern Afghanistan. The country imports almost 70% of its energy needs, so development of the natural gas reserves is essential for the country.

The objective of the SGG Activity (SGGA) is to provide training, TA and capacity enhancement to the Ministry of Mines & Petroleum (MoMP) and other relevant entities within the Government of Afghanistan such as the Afghanistan Petroleum Authority (APA), and Afghanistan Gas Enterprises (AGE). MoMP must have the capacity to prepare tender and bid documents, conduct legal analysis, advise on pricing models,

and oversee construction of the necessary infrastructure to exploit all-natural gas deposits discovered in Afghanistan in the future.

On-budget funds paid for test-well drilling/rehab in one gas field (Juma/Bashikurd). Off budget efforts support the institutions (MoMP, APA and AGE) and investments necessary to sustain those goals. Future power supply and improvements to transmission line systems are expected to lower dependency on the import of energy and increase the supply of reliable lower cost electricity. Future investments in the gas and electricity sectors will stimulate local, regional, and national economy, create jobs, improve social services and quality of life for the majority of Afghanistan's urban population.

III. BACKGROUND

The Sheberghan Gas Generation Activity (SGGA) is the off-budget TA mechanism for USAID's on budget Sheberghan Gas Development Project (SGDP) to be executed in conjunction with the Ministry of Mines & Petroleum (MoMP). The overall objective of the SGDP is to stimulate the use of Afghan natural gas for national economic growth by supporting infrastructure development for gas-fueled power generation and other industrial and commercial uses. Use of domestic resources will reduce Afghanistan's almost total dependence on imported electricity and fuel.

SGGA is assisting in the implementation of this objective through four assistance programs centered on the Ministry of Mines and Petroleum. First is supporting the Ministry in assessing the amount of commercial natural gas that is immediately available to be managed by the Ministry in Jawzjan Province. This assessment is being carried out through drilling and testing one new gas well and re-entering and testing two existing wells in a large but undeveloped gas field (Juma/Bashikurd) near Sheberghan City, Jawzjan Province, and by commissioning a gas reserve study by an international petroleum engineering firm to assess available data and, if feasible, prepare reserve estimates for seven known gas fields in the province. The well-testing program is being carried out through a commercial service contract between MoMP and Turkish Petroleum Corporation (TPAO), jointly funded by USAID and MoMP, with procurement and contract management support from SGGA. The data assessment and reserve estimate program will be funded entirely by USAID and carried out through a subcontract with the SGGA implementing partner (IP) Advanced Engineering Associates International, Inc.

SGGA will also develop a business and financial structure for a public-private-partnership (PPP) for the creation of a gas gathering and processing business to meet the expanding needs for gas industry infrastructure in northwest Afghanistan while providing a long-term profitable commercial enterprise for the Afghan government. SGGA will also present a plan to the Ministry and government for the redevelopment of Ministry land currently occupied by unusable facilities as an 'energy park' for locating private (or public-private) gas infrastructure such as gas gathering and processing facilities, pipeline terminals, a power plant, and potentially an oil refinery.

In addition to these direct infrastructure programs, SGGA conducts a wide-ranging capacity building program that includes business and industry focused training in such areas as business English language, technical courses such as drilling techniques and management, and the Ministry's first distance learning program, a petroleum industry health and safety management course provided by the U.S. Occupational Safety and Health Administration (OSHA). On successful course completion, participants will receive an internationally recognized OSHA certificate. SGGA also provides ongoing mentoring for the Ministry in

public information office management and skills and petroleum industry contract procurement and contract management.

The following summarizes the objectives and current key tasks of the Sheberghan Gas Development Project (SGDP). The project is funded by USAID and implemented through the Sheberghan Gas Generation Activity (SGGA) by Advanced Engineering Associates International (AEAI).

Program Objectives: The overall objective of the SGDP is to support the creation of infrastructure that will enable the commercial use of Afghanistan's gas reserves. The immediate objectives include:

- attracting private sector interest in gas infrastructure development
- attracting private sector interest in gas-to-power projects to meet the strong demand for reliable electric power at costs lower than that of imported and diesel generated electricity

Key Tasks

- Support MoMP management of on-budget drilling services contract: Support for the Ministry of Mines and Petroleum (MoMP) in managing the on-budget drilling services contract with Turkish National Petroleum Corporation (TPAO).
    - Purpose: Drill one new well and re-enter two existing wells in the Juma-Bashikurd Field. These wells are assessment (test) wells used to assess gas quantity and quality in the field.
    - TPAO contract cost: $36,757,766 fixed price, funded with $30 million USAID grant, $7 million Ministry's appropriated funds.
    - Estimated completion: 4th quarter of 2015. TPAO was 369 days behind schedule in early 2015.
    - Current status (2016):
        - TPAO completed drilling operations and has demobilized most equipment and materials back to Turkey
        - Final invoices expected soon
        - Ministry has been provided requirements to verify TPAO performance for payment
        - Potential Benefit: (1) Data for estimating reserves.

- Gas Data Evaluation and Reserves Estimates: Study by international petroleum engineering firm, funded entirely by USAID off-budget to evaluate currently available geological, geophysical and production data and updated gas reserve estimates.
    - Purpose: Evaluate seven known gas fields in Jawzjan Province controlled by the Afghan Ministry of Mines and Petroleum in Jawzjan Province
    - Benefit: Ministry's ability to provide current, independent reserve estimates to potential investors in gas processing and power generation. Independent reserve evaluation is a main requirement for international investment and financing.
    - Status: In mid-October 2014, SGGA requested APA to make an agreement for data access, use, and confidentiality of data. MoMP and APA cooperated and provided data in 2015.

- Prepare Proposal for Public-Private Partnership for gas gathering and processing: Off-budget task for preparing a model public-private partnership framework for building and operating commercial gas gathering and processing facilities in the Sheberghan area.
    - Purpose: Develop financial and business framework plan for Afghan Government participation with private investor in commercial, for-profit gas gathering and processing business to provide critical services to collect gas and make it usable for fuel gas and other uses. Private participation will provide needed capital and expertise not otherwise available. The estimated cost of a minimum size processing facility is estimated to be $200 to $300 million.
    - Benefit:
        - Opportunity to leverage future USAID grants for Afghan Government ownership participation in long-term gathering and processing business
        - Enhances production sharing contract receipts to Ministry by eliminating need for cost-recoverable production block facilities
        - Provides needed business, legal, and tender documents for Government use in selecting private partner
    - Status: Subcontractor (Baker Botts) is currently preparing final transaction documents for use by GoA.

- Gas Infrastructure Hub: Conceptual planning to develop 'energy park' at existing Gerquduq location for future gas gathering terminus, gas processing facility, power plants, trunk pipeline terminus and compression for treatment, transmission, and oil refining.
    - Purpose: Providing centrally located, pre-planned location to make investment in gas infrastructure more attractive to private sector; convert existing unused brownfield site into potential source of rental revenue.
    - Benefit: Conversion of currently unused, but well-located Government property into revenue generating facility; assure private investors of availability of suitable development locations.
- Capacity Building: Ongoing programs emphasizing technical skills to support gas sector and assure sustainability of above projects.

Current Status:

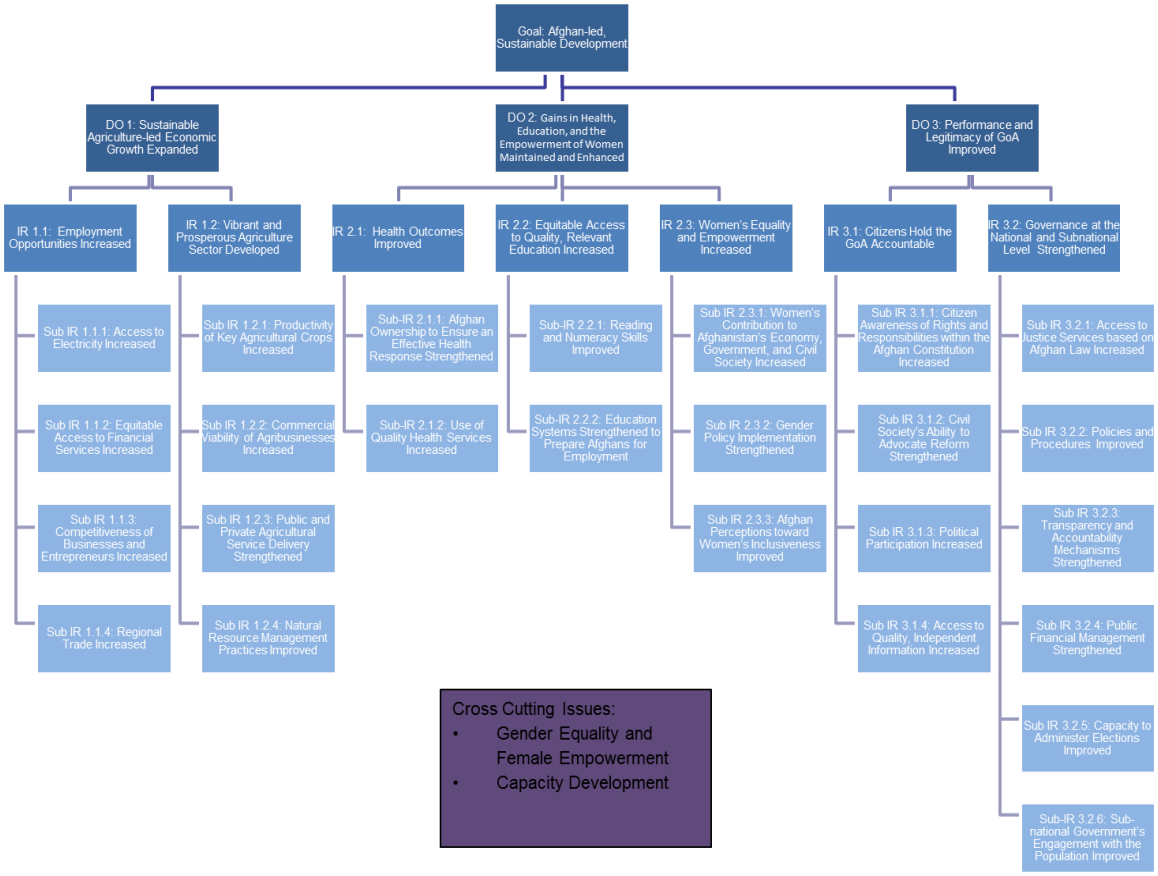
Drilling contractor schedule/performance: TPAO completed demobilization during this reporting period. Equipment was cleared from the field by 1 March 2016.

Support to MoMP on projects including field data evaluation and reserve estimates:

1. McDaniel Associates was selected from three petroleum engineering firms offering proposals to conduct data evaluation and reserve estimates on seven gas fields in the Sheberghan area. The subcontract negotiations were concluded in February.
2. The more than 25,000 documents collected, organized, and scanned by SGGA were McDaniel.
3. SGGA engineering staff has begun organizing and cataloguing well cores for AGE and OGS. This will provide valuable data for reservoir characteristics for a number of fields.
4. Initial gas data evaluation reports from McDaniel have been provided on three fields.

Map: See Annex 11

IV. PROGRAM GOALS AND OBJECTIVES



Logical Framework: [See Annex III]

List of key activities:

1. Support MoMP management of on-budget drilling services contract
2. Gas Data Evaluation and Reserves Estimates
3. Prepare Proposal for Public-Private Partnership for gas gathering and processing
4. Gas Infrastructure Hub (Energy Park)
5. Capacity Building: Ongoing programs emphasizing technical skills to support gas sector and assure sustainability of above projects.

Note: For details about key activities, please see Key Tasks under Background section.

V. PURPOSE OF THE EVALUATION

The purpose of this evaluation is to 1) identify lessons learned in the gas and oil sector to influence future management decision-making and 2) evaluate the effectiveness of the G2G modality in working with MoMP, and identify lessons learned for future activities under G2G mechanisms and provide recommendations on how to engage through G2G in the gas/oil sector.

VI. EVALUATION QUESTIONS

1. To what extent is the SGGA development hypothesis valid? Did development assumptions hold true throughout the project?
2. Are the deliverable documents drafted by SGGA; contracts, regulations/laws and procedures still relevant or outdated? In answering this question please provide a narrative reply and a table of relevant and non-relevant documents.
3. What evidence is there of increased capacity in MoMP/GoA? What factors threaten or support the retention of capacity gains at the organizational level?
4. What obstacles prohibit the exploitation of natural gas deposits in Afghanistan? (Systems analysis)
5. Have the results produced under the SGGA project—namely, the McDaniel & Associates Gas Reserve Studies of eight existing gas fields, including test results of two Juma Bashikurd gas wells—influenced the sector's development in Afghanistan? If so, how, and why?

Systems Analysis: Overall what is the state of the as-is system and what are the differences to an ideal system?

1. What resources (inputs) are necessary to exploit natural gas deposits? Are these available locally?
2. To what extent do the rules (laws, regulations, or procedures) support or prohibit exploiting natural gas deposits?
3. What roles are necessary to exploit natural gas deposits? Who is fulfilling these roles and how well?
4. How do the relationships in the system support or prohibit exploiting natural gas deposits?
5. Where is the demand for these results coming from? Is there opposition to achieving these results?

VII. EVALUATION DESIGN & METHODOLOGY

Questions	*Suggested Data Sources*	*Suggested Data Collection Methods*	*Data Analysis Methods*
1. To what extent is the SGGA development hypothesis valid? Did development assumptions hold true throughout the project?	*Ministry of Mines & Petroleum* *Ministry of Finance.* *Project Reports*	*Key Informant Interview*	*TBD with evaluation team.*

2. How successful and sustainable were G2G approaches in building MoMP capacity in the oil/gas sector)? Are the deliverable documents drafted by SGGA; contracts, regulations/laws and procedures still relevant or outdated? In answering this question please provide a narrative reply and a table of relevant and non-relevant documents.	*Ministry of Mines & Petroleum* *Project Reports*	*Key Informant Interview*	*Kabul*
3. What evidence is there of increased capacity in MoMP/GIRoA? What factors threaten or support the retention of capacity gains at the organizational level?	*Ministry of Mines & Petroleum* *Project Reports*	*Key Informant Interview*	*Kabul*
4. What obstacles prohibit the exploitation of natural gas deposits in Afghanistan? (Systems analysis)	*Ministry of Mines & Petroleum* *Project Reports*	*Key Informant Interview*	*Kabul*
5. Have the results produced under the SGGA project—namely, the McDaniel & Associates Gas Reserve Studies of eight existing gas fields, including test results of two Juma Bashikurd gas wells— influenced the sector's development in Afghanistan? If so, how, and why?	*Ministry of Mines & Petroleum* *Project Reports*	*Key Informant Interview*	*Kabul*

VIII. EXISTING PERFORMANCE INFORMATION SOURCES

List of documents available:

Contract document and modifications
Reports by AEAI [monthly, quarterly, annually and annual workplans]
Project Deliverables by AEAI
- Gas Reserve Studies
- Gas Market and Production Study
- The Public Private Partnership (PPP) modeling documentation
- Energy Park Concept Study

Reports provided by counterpart [MoMP]
Project contract and modifications.
M&E plan.

Note: The COR for SGGA will provide the relevant documents as a package.

IX. EVALUATION TEAM COMPOSITION

The team will consist of four members. One expatriate team leader who will serve as the primary coordinator with USAID, one expatriate technical expert and two local consultants/translators (one in evaluation and research, and one in specialist in gas and oil).

Team Leader – Should have more than 10 years-experience in hydrocarbon (gas and oil) business analysis and field engineering experience. He must have professional writing skills. Experience in evaluation of oil and gas projects.
Evaluation Consultant – Should have at least 5 to 8 years-experience, in evaluation and assessment of the relevant sector. Engineering degree in related field.
Research Assistant – Should have at least 5 years-experience in research of similar field, preferably gas and oil sector. Engineering degree in related field.

X. EVALUATION SCHEDULE

This evaluation shall be scheduled to begin in August and the final report is expected by end September 2017. A six-day work week in Afghanistan is authorized for this evaluation. Illustrative level of effort (LOE) in days is provided below.

Sample Table: *Minimum* LOE in days by activity for a team of 4

Position	Remote prep	Travel to/from Kabul	In-Country	Finalization of Report	Total
Expat Team Leader		4	42	5	51
Expat Specialist		4	42	5	51
Afghan Specialist/Translator -1			40		40
Afghan Specialist/Translator -2			40		40
SUPPORT-II M&E Specialist					
Totals	0	8	164	10	182

XI. DELIVERABLES AND REPORTING REQUIREMENTS

1. *In-briefing: Within 48 hours of arrival in Kabul, the Evaluation Team, will have an in-briefing with the OPPD M&E unit and the OI Team for introductions and to discuss the team's understanding of the assignment, initial assumptions, evaluation questions, methodology, and work plan, and/or to adjust the SOW, if necessary.*

2. *Evaluation Work Plan: Within 3 calendar days following the in-brief, the Evaluation Team Leader shall provide a detailed initial work plan to OPPD's M&E unit and OI. The initial work plan will include: (a) the overall evaluation design, including the proposed methodology, data collection and analysis plan, and data collection instruments; (b) a list of the team members and their primary contact details while in-country, including the e-mail address and mobile phone number for the team leader; and (c) the team's proposed schedule for the evaluation. USAID offices and relevant stakeholders are asked to take up to 2 days to review and consolidate comments*

through the SUPPORT II COR. Once the evaluation team receives the consolidated comments on the initial work plan, they are expected to return with a revised work plan within 2 days. The revised work plan shall include the list of potential interviewees and sites to be visited.

3. *Midterm Briefing and Interim Meetings: The evaluation team is expected to hold a midterm briefing with USAID on the status of the assessment including potential challenges and emerging opportunities. The team can also provide other stakeholders with periodic briefings and feedback on the team's findings, as agreed upon during the in-briefing. If desired or necessary, weekly briefings by phone can be arranged.*

4. *PowerPoint and Final Exit Presentation: The evaluation team is expected to hold a final exit presentation to discuss the summary of findings and recommendations to USAID. This presentation will be scheduled as agreed upon during the in-briefing. Presentation slides should not exceed 18 in total.*

5. *Draft Evaluation Report: The draft evaluation report should be consistent with the guidance provided in Section XIII: "Final Report Format." The report will address each of the issues and questions identified in the SOW and any other factors the team considers to have a bearing on the objectives of the evaluation. Any such factors can be included in the report only after consultation with USAID. The submission date for the draft evaluation report will be decided upon during the mid-term or exit briefing and submitted to OPPD's M&E unit by Checchi. Once the initial draft evaluation report is submitted, the following deadlines should be followed:*

- *a. OI will have 8 working days in which to review and comment on the initial draft, after which point USAID/OPPD's M&E unit will have 2 working days to review and consolidate all USAID comments (total of 10 working days). OPPD will submit the consolidated comments to Checchi.*
- *b. The evaluation team will then have 5 working days to make appropriate edits and revisions to the draft and re-submit the revised final draft report to USAID.*
- *c. OI and the M&E unit will have 10 working days after the submission of the second revised draft to again review and send any final comments.*

Final Evaluation Report: The evaluation team will be asked to take no more than 3 days to respond/incorporate the final comments from the [insert office] and OPPD. The Evaluation Team Leader will then submit the final report to OPPD. Evaluation Final report should include all elements described in ADS 201mah, USAID Evaluation Report Requirement which listed below. All project data and records (dataset, supporting documents such as code books, data dictionaries, scope and methodology used to collect and analyze the data) will be submitted in full and should be in electronic form in easily readable format; organized and documented to be submitted to the USAID Development Data Library and for use by those not fully familiar with the project or evaluation; and owned by USAID. Evaluation report should represent a thoughtful, well-researched, and well-organized effort to objectively evaluate the strategy, project, or activity.

The evaluation report must:

1. *Identify the evaluation as either an impact or performance evaluation per the definitions in ADS 201.*

2. *Include an abstract of not more than 250 words briefly describing what was evaluated, evaluation questions, methods, and key findings or conclusions. The abstract should appear on its own page immediately after the evaluation report cover.*

3. Include an Executive Summary 2–5 pages in length that summarizes key points (purpose and background, evaluation questions, methods, findings, and conclusions).

4. State the purpose of, audience for, and anticipated use(s) of the evaluation.

5. Describe the specific strategy, project, activity, or intervention to be evaluated including (if available) award numbers, award dates, funding levels, and implementing partners.

6. Provide brief background information. This should include country and/or sector context; specific problem or opportunity the intervention addresses; and the development hypothesis, theory of change, or simply how the intervention addresses the problem.

7. State the evaluation questions.

8. In an impact evaluation, state evaluations questions about measuring the change in specific outcomes attributable to a specific USAID intervention.

9. Describe the evaluation method(s) for data collection and analysis.

10. Describe limitations of the evaluation methodology.

11. In an impact evaluation, use specific experimental or quasi-experimental methods to answer impact evaluation questions.

12. Include evaluation findings and conclusions.

13. If recommendations are included, separate them from findings and conclusions.

14. Address all evaluation questions in the Statement of Work (SOW) or document approval by USAID for not addressing an evaluation question.

15. Include the annexes listed under the evaluation report format section.

XII. MANAGEMENT

Checchi/SUPPORT-II will identify and hire the evaluation team, pending the COR's concurrence and CO approval, assist in facilitating the work plan, and arrange meetings with key stakeholders identified prior to the initiation of the fieldwork. The evaluation team will organize other meetings as identified during the course of the evaluation, in consultation with Checchi/SUPPORT-II and USAID/Afghanistan. Checchi/SUPPORT-II is responsible for all logistical support required for the evaluation team, including arranging accommodation, security, office space, computers, Internet access, printing, communication, and transportation.

The evaluation team will officially report to Checchi's SUPPORT-II management. Checchi/SUPPORT-II is responsible for all direct coordination with USAID/Afghanistan/OPPD, through the SUPPORT II COR, Mr. XXXX. From a technical management perspective, the evaluation team will work closely with the COR for SGGA Mr. XXXX and Alternate COR Mr. XXXX. In order to maintain objectivity, OPPD's Monitoring and Evaluation Unit will make all final decisions about the evaluation.

XIII. FINAL REPORT FORMAT

The evaluation final report should not exceed 35 in length, excluding the Executive Summary and Annexes. It should be written in English, using Gill Sans MT 11-point font, 1.15 line spacing, and be consistent with USAID branding policy. The report should be structured as follows:

1. Title Page
2. Table of Contents
3. List of any acronyms, tables and/or figures
4. Acknowledgements or Preface (optional)
5. Executive Summary (3-5 pages)
6. Introduction
    a. Description of the project evaluated, including goal and expected results
    b. Brief statement on purpose of the evaluation, plus a list of the evaluation questions
    c. Description of the methods used in the evaluation (such as desk/document review, interviews, site visits, surveys, etc.), the rationale and location for field visits (if any), and a description of the numbers and types of respondents
    d. Limitations to the evaluation, with particular attention to the limitations associated with the evaluation methodology (selection bias, recall bias, unobservable differences between comparator groups, etc.)
7. Findings
    a. Describe findings, focusing on each of the evaluation questions and providing gender disaggregation where appropriate
    b. Evaluation findings should be presented as analyzed facts, evidence, and data and not based on anecdotes, hearsay, or the compilation of people's opinions
8. Conclusions
    a. Conclusions are value statements drawn from the data gathered during the evaluation process
9. Recommendations
    a. Recommendations should be actionable, practical and specific statements for existing programming and for the design and performance of future programming
    b. Each recommendation should be supported by a specific set of findings
    c. Include recommended future objectives and types of activities based on lessons learned
10. Annexes
    a. Evaluation Scope of Work
    b. Methodology description (include <u>any pertinent</u> details not captured in the report)
    c. Copies of all survey instruments and questionnaires
    d. List of critical and key documents reviewed

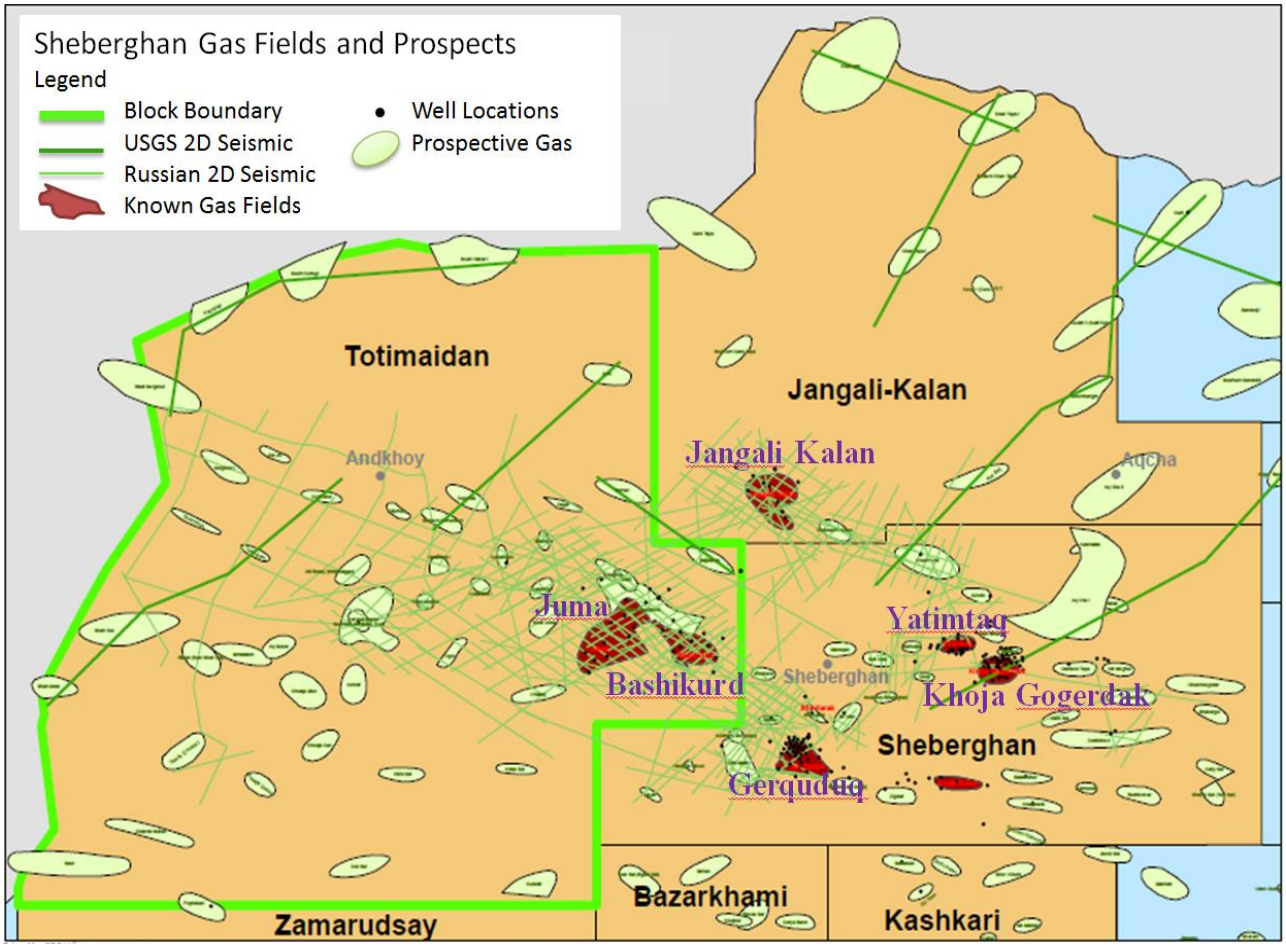
e. Schedule of Meetings and sources of information (If confidentiality is a concern, the team should discuss and agree upon an approach with USAID)
f. Notes from key interviews, focus group discussions and other meetings
g. Documentation of any changes to the SOW or evaluation process
h. Statement of differences (if applicable)

XIV. OVERALL REPORTING GUIDELINES

The evaluation report should represent a thoughtful, well-researched and well-organized effort to objectively evaluate the validity of the project's hypothesis and the effectiveness of the project. Evaluation reports shall address all evaluation questions included in the statement of work and be written in highly professional English, free of grammatical and typographical error, and with professional formatting.

Any modifications to the statement of work, whether in technical requirements, evaluation questions, evaluation team composition, methodology, or timeline need to be agreed upon in writing.

ANNEX II. MAP OF CURRENT AND POTENTIAL SHEBERGHAN-BASED GAS FIELDS



ANNEX III. LOGICAL FRAMEWORK

Goals: Employment Opportunities Increased (IR 1.1) Governance at the National and Subnational Level Strengthened (IR 3.2)

Purpose: Provide technical assistance to the Government of the Islamic Republic of Afghanistan (GIRoA) to support capacity building of MoMP, to provide data evaluation and gas reserve estimates for MoMP gas fields, and to develop a framework for investment through a public-private partnership for gas gathering and processing.

Sub Purpose:

- GIRoA policies and procedures improved (Sub IR 3.2.2)
- Competitiveness of Businesses and Entrepreneurs Increased (Sub IR 1.1.3)

Objective 1: Provide technical advisory to MoMP in its management of third party contract drilling/rehabilitating three natural gas wells in the area of Sheberghan

Increase technical capacity of MoMP staff by providing training, technical assistance and management support.

Indicators:

- 1.1: Number of Natural Gas Wells Drilled/Rehabilitated with Technical and Contract Management Support. (IR 1.1: Custom Indicator) Note: The natural gas wells need to be drilled in order for further reservoir data to be collected at a future date.
- 1.2: Person hours of training completed in technical energy fields supported by USG assistance (IR 3.2: (F-State Indicator 4.4.1-34)
- 1.3: Number of days of USG funded technical assistance in technical energy fields provided to counterparts or stakeholders (IR 3.2: F-State Indicator 4.4.1-35)

Objective 2: Conduct gas data evaluation reports and reserve estimates detailing Afghanistan's gas field reserves

Outputs: Gas Field reserve estimates of the Gerquduq, Khoja Gogerdak, Yatimtaq, Shakarak, Jangl-e-Kalan, Chech Che, and Khoja Bolan gas fields.

Indicators:

- 2.1: Number of data evaluation reports and reserve estimates completed (IR 2.1)

Objective 3: Develop a public-private partnership framework for the construction and operation of a gas gathering system and gas processing plant.

Outputs: Submission of a recommended structure for a public-private partnership to relevant agencies of the GIRoA and USAID.

Indicators:

- 3.1: Number of policy reforms/laws/regulations/ administrative procedures drafted and presented for public/stakeholder consultation to enhance sector governance and/or facilitate private sector participation and competitive markets as a result of USG assistance (IR 3.2 F-State Indicator 4.4 1-33)

ANNEX IV. EVALUATION DESIGN MATRIX AND DATA COLLECTION INSTRUMENTS

Evaluation Question	Data Source (Organization /Individual)	Data Collection Methods
To what extent is the SGGA development hypothesis valid? Did development assumptions hold true throughout the project?		
1.1 The data gathered answering the preceding questions will provide the basic input for the Assessment Team's analysis of the validity of the SGGA development hypothesis and will inform recommendations for how future interactions with MoMP might be structured to improve overall outcomes.	Analysis of MoMP and Ministry of Finance (MoF) staff responses, interview responses from other donors, and document analysis	KII, Document Reviews
Are the deliverable documents drafted by SGGA; contracts, regulations/laws and procedures, permitting plans and requirements still relevant or outdated? In answering this question please provide a narrative reply and a table of relevant and non-relevant documents		
2.1a Are you aware of the model PPP to build a gas gathering and processing facility?	MoMP, MoF staff Other Interviewees Reports	KII, Report Review
2.1b Do you know anyone who did work on the PPP?	MoMP, MoF staff Other Interviewees Reports	KII, Report Review
2.1c Were you involved in the development of the plan?	MoMP, MoF staff Other Interviewees Reports	KII, Report Review
2.1d Was this model successfully developed?	MoMP, MoF staff Other Interviewees Reports	KII, Report Review
2.1e What laws govern the PPP?	MoMP, MoF staff Other Interviewees Reports	KII, Report Review
2.1f Have there been revisions to these laws?	MoMP, MoF staff Other Interviewees Reports	KII, Report Review
2.1g Are you aware of anyone ever wanting to use the model for project development.	MoMP, MoF staff Other Interviewees Reports	KII, Report Review

2.1h How was it used or why was it not used?	MoMP, MoF staff Other Interviewees Reports	KII, Report Review
2.2a Are you aware of the effort to develop a gas infrastructure Hub?	MoMP, MoF staff Other Interviewees Reports	KII, Report Review
2.2b Do you know anyone who did work on the Hub?	MoMP, MoF staff Other Interviewees Reports	KII, Report Review
2.2c Were you involved in the development of the plan?	MoMP, MoF staff Other Interviewees Reports	KII, Report Review
2.2d Was this plan completed?	MoMP, MoF staff Other Interviewees Reports	KII, Report Review
2.2e What laws govern the establishment of the Hub?	MoMP, MoF staff Other Interviewees Reports	KII, Report Review
2.2f Have there been revisions to these laws?	MoMP, MoF staff Other Interviewees Reports	KII, Report Review
2.2g Are you aware of anyone ever wanting to use the model for project development.	MoMP, MoF staff Other Interviewees Reports	KII, Report Review
2.2h How was it used or why was it not used?	MoMP, MoF staff Other Interviewees Reports	KII, Report Review
What evidence is there of increased capacity in MoMP/GoA? What factors threaten or support the retention of capacity gains at the organizational level?		
3.1 How long did you interact with SGGA?	MoMP, MoF staff	KII, Report Review
3.2 How did you interact with SGGA?	MoMP, MoF staff	KII, Report Review
3.3 How often did you interact with SGGA staff? daily/occasionally/rarely	MoMP, MoF staff	KII, Report Review
3.4a Did you receive training from SGGA?	MoMP, MoF staff	KII, Report Review
3.4b What kind of training/ capacity building did you receive? OJT/classroom/international/workshop/other	MoMP, MoF staff	KII, Report Review
3.4c Did you find this training effective?	MoMP, MoF staff	KII, Report Review

3.4d Did training and working with SGGA staff improve your ability to do your job? significantly/some/none	MoMP, MoF staff	KII, Report Review
3.5a Of the people in your class, how many are still in MoMP?	MoMP, MoF staff	KII, Report Review
3.5b Are they still doing the job they were trained to do?	MoMP, MoF staff	KII, Report Review
3.5c Do you know why some left MoMP?	MoMP, MoF staff	KII, Report Review
3.6 Anything you want to tell us about the SGGA program?	MoMP, MoF staff	KII, Report Review
3.7 What kind of assistance from USAID would be most effective in building permanent MoMP capacity?	MoMP, MoF staff	KII, Report Review
3.8 What do you think the MoMP can do to better use USAID development assistance?	MoMP, MoF staff	KII, Report Review
What obstacles prohibit the exploitation of natural gas deposits in Afghanistan?		
4.1 Overall what is the state of the oil and gas development in Afghanistan and what are the differences to an ideal development program?	MoMP, MoF staff Contractor's staff Other Interviewees Reports	KII, Report Review
4.2a What resources (inputs) are necessary to exploit natural gas deposits?	MoMP, MoF staff Contractor's staff Other Interviewees Reports	KII, Report Review
4.2b Are these available locally?	MoMP, MoF staff Contractor's staff Other Interviewees Reports	KII, Report Review
4.3a What market forces are necessary to ensure the investment viability for natural gas exploitation?		
4.3b Are these market forces present?		
4.4 To what extent do the rules (laws, regulations, or procedures) support or prohibit exploiting natural gas deposits?	MoMP, MoF staff Contractor's staff Other Interviewees Reports	KII, Report Review
4.5a What roles are necessary to exploit natural gas deposits?	MoMP, MoF staff Contractor's staff Other Interviewees Reports	KII, Report Review
4.5b Who in Afghanistan is fulfilling these roles and how well?	MoMP, MoF staff Contractor's staff Other Interviewees	KII, Report Review

	Reports	
4.6 How do the relationships in the system support or prohibit exploiting natural gas deposits?	MoMP, MoF staff Contractor's staff Other Interviewees Reports	KII, Report Review
4.7a Where is the demand for these results coming from?	MoMP, MoF staff Contractor's staff Other Interviewees Reports	KII, Report Review
4.7b Is there opposition to achieving these results?	MoMP, MoF staff Contractor's staff Other Interviewees Reports	KII, Report Review
4.8 What does MoMP think about private sector investment in Afghanistan's hydrocarbon sector?	MoMP, MoF staff Contractor's staff Other Interviewees Reports	KII, Report Review
4.9 How does MoMP promote private sector investment in this sector?	MoMP, MoF staff Contractor's staff Other Interviewees Reports	KII, Report Review
Have the McDaniel and Associates Gas Reserve Studies of eight existing gas fields, including test results of two Juma/Bashikurd gas wells—influenced the sector's development in Afghanistan? If so, how, and why		
5.1 Have you seen the McDaniel and Associates gas reserve estimates?	MoMP staff Other Interviewees Reports	KII, Report Review
5.2 Do you use that assessment for development planning?	MoMP staff Other Interviewees Reports	KII, Report Review
5.3 Have you been contacted by outside investors requesting copies of this document?	MoMP staff Other Interviewees Reports	KII, Report Review
5.4 Are the test results of the Juma Bashikurd gas wells available to the public?	MoMP staff Other Interviewees Reports	KII, Report Review
5.5 Has anyone requested the results?	MoMP staff Other Interviewees Reports	KII, Report Review
5.6 From your perspective, has this report influenced development of the oil and gas sector of Afghanistan?	MoMP staff Other Interviewees Reports	KII, Report Review
5.7 Why do you think MoMP rejected the McDaniel findings?	MoMP staff	KII, Report Review

ANNEX V. DOCUMENT REVIEW AND KEY INFORMANT INTERVIEW PROTOCOL

Date: __/___/2017 Location: _____ Start time: _____ End time: _____

Evaluation Team Member: _____ \

Name of KII/FGD or Document:

_____

Organization: _____, Level (Policy, Management, Operations), Sex (M / F)

Please inform participant(s) that we are collecting information to assist USAID to better plan its future support to the Government of the Islamic Republic of Afghanistan. Participants should feel free to openly discuss issues and to provide any information relevant to this effort. All discussion will be fully confidential with no attribution to any specific individual. Reports of our discussions will not contain details that would permit identification of their unique source. Please advise the participant(s) to feel free to give their best suggestions.

For documents, please provide notes on its contents related to the questions below. Please indicate NA for questions that are not addressed in the document.

QUESTIONS

1. ARE THE DELIVERABLE DOCUMENTS DRAFTED BY SGGA; CONTRACTS, REGULATIONS/LAWS AND PROCEDURES STILL RELEVANT OR OUTDATED? IN ANSWERING THIS QUESTION PLEASE PROVIDE A NARRATIVE REPLY AND A TABLE OF RELEVANT AND NON-RELEVANT

1.1a Are you aware of the model PPP to build a gas gathering and processing facility?	yes / no
1.1b Were you involved in the development of the plan?	yes / no
1.1c Do you know anyone who did work on the PPP?	yes / no Contact info?
1.1d Was this model successfully developed?	yes / no
1.1e What laws govern the PPP?	List
1.1f Have there been revisions to these laws?	yes / no Which and When?
1.1g Are you aware of anyone ever wanting to use the model for project development.	yes / no Who?

1.1h How was it used or why was it not used?	
1.2a Are you aware of the effort to develop a gas infrastructure Hub?	yes / no
1.2b Were you involved in the development of the plan?	yes / no
1.2c Do you know anyone who did work on the Hub?	yes / no Contact info?
1.2d Was this plan completed?	yes / no
1.2e What laws govern the establishment of the Hub	List
1.2f Have there been revisions to these laws?	yes / no Which and When
1.2g Are you aware of anyone ever wanting to use the model for project development.	yes / no Who
1.2h How was it used or why was it not used?	

2. What evidence is there of increased capacity in MoMP/GoA? What factors threaten or support the retention of capacity gains at the organizational level?

2.1 How long did you interact with SGGA?	
2.2 How did you interact with SGGA?	
2.3 How often did you interact with SGGA staff?	daily / occasionally / rarely
2.4a Did you receive training from SGGA?	yes / no
2.4b What kind of training/ capacity building did you receive	OJT / classroom / international / workshop / other
2.4c Did you find this training effective?	yes / no
2.4d Did training and working with SGGA staff improve your ability to do your job?	significantly / some / none
2.5a Of the people in your class, how many are still in MoMP?	number:
2.5b Are they still doing the job they were trained to do?	yes / no If no, do you know what they are doing now?

2.5c Do you know why some left MoMP?	
2.6 Anything you want to tell us about the SGGA program?	
2.7 What kind of assistance from USAID would be most effective in building permanent MoMP capacity?	
2.8 What do you think the MoMP can do to better use USAID development assistance?	

3. What obstacles prohibit the exploitation of natural gas deposits in Afghanistan?

3.1 Overall what is the state of the oil and gas development in Afghanistan and what are the differences to an ideal development program?	
3.2a What resources (inputs) are necessary to exploit natural gas deposits?	
3.2b Are these available locally?	yes / no
3.3 To what extent do the rules (laws, regulations, or procedures) support or prohibit exploiting natural gas deposits?	
3.4a What roles are necessary to exploit natural gas deposits?	
3.4b Who in Afghanistan is fulfilling these roles and how well?	
3.5 How do the relationships in the system support or prohibit exploiting natural gas deposits?	
3.6a Where is the demand for these results coming from?	
3.6b Is there opposition to achieving these results?	
3.7 What does MoMP think about private sector investment in Afghanistan's hydrocarbon sector?	
3.8 How does MoMP promote private sector investment in this sector?	

4. Has the McDaniel and Associates Gas Reserve Studies of eight existing gas fields, including test results of two Juma and Bashikurd gas wells—influenced the sector's development in Afghanistan? If so, how, and why?

4.1 Have you seen the McDaniel and Associates gas reserve estimates?	yes / no
4.2 Do you use that assessment for development planning.	yes / no

4.3 Have you been contacted by outside investors requesting copies of this document?	yes / no Can you say who?
4.4 Are the test results of the Juma Bashikurd gas wells available to the public?	yes / no
4.5 Has anyone requested the results?	yes / no Can you say who?
4.6 From your perspective, has this report influenced development of the oil and gas sector of Afghanistan?	yes / no How?
4.7 Why do you think MoMP rejected the McDaniel findings?	

ANNEX VI. LIST OF DOCUMENTS REVIEWED

1. Adam Smith International, August 2, 2013, The Strategic Environmental and Social Assessment of the Extractives Industry Sector in Afghanistan [SESA-EISA], Submitted to MoMP, 133p.

2. Advanced Engineering Associates International, Inc., November 1 – November 30, 2011, SGGA Monthly Report, Submitted to USAID, 8p.

3. Advanced Engineering Associates International, Inc., February 1, 2012 – February 29, 2012, SGGA Monthly Report, Submitted to USAID, 31p.

4. Advanced Engineering Associates International, Inc., March 1, 2012 – March 31, 2012, SGGA Monthly Report, Submitted to USAID, 22p.

5. Advanced Engineering Associates International, Inc., April 1, 2012 – April 30, 2012, SGGA Monthly Report, Submitted to USAID, 6p.

6. Advanced Engineering Associates International, Inc., May 1, 2012 – May 31, 2012, SGGA Monthly Report, Submitted to USAID, 6p.

7. Advanced Engineering Associates International, Inc., June 1, 2012 – June 30, 2012, SGGA Monthly Report, Submitted to USAID, 10p.

8. Advanced Engineering Associates International, Inc., July 1, 2012 – July 31, 2012, SGGA Monthly Report, Submitted to USAID, 9p.

9. Advanced Engineering Associates International, Inc., August 1, 2012 – August 31, 2012, SGGA Monthly Report, Submitted to USAID, 8p.

10. Advanced Engineering Associates International, Inc., October 1, 2012 – October 31, 2012, SGGA Monthly Report, Submitted to USAID, 10p.

11. Advanced Engineering Associates International, October 30, 2012, SGGA Annual Report covering period December 21, 2011 through September 30, 2012, Submitted to USAID. 16p.

12. Advanced Engineering Associates International, Inc., November 1, 2012 – November 30, 2012, SGGA Monthly Report, Submitted to USAID, 10p.

13. Advanced Engineering Associates International, Inc., November 29, 2012, MoMP SGDP/IL Advice and Support Action Plan with Schedule (Deliverable 1-4), Submitted to USAID, 9p.

14. Advanced Engineering Associates International, Inc., November 29, 2012, Revised Annual Work and Staffing Plan (Deliverable 1-2), Submitted to USAID, 19p.

15. Advanced Engineering Associates International, Inc., December 1, 2012 – December 31, 2012, SGGA Monthly Report, Submitted to USAID, 11p.

16. Advanced Engineering Associates International, Inc., December 14, 2012, Proposed Implementation Letter Procurement Schedule (Deliverable 1-5), Submitted to USAID, 6p.

17. Advanced Engineering Associates International, Inc., December 14, 2012, Report on Draft of Drilling Contract Tendering Documents for Review (Deliverable 2-1), Submitted to USAID, 8p.
18. Advanced Engineering Associates International, Inc., December 17, 2012, Environmental Scoping Study (Deliverable 2-7), Submitted to USAID, 110p.

19. Advanced Engineering Associates International, Inc., December 19, 2012, Joint Program Implementation Strategies and Procedures Manual (Deliverable 1-8), Submitted to USAID, 18p.

20. Advanced Engineering Associates International, Inc., December 26, 2012, Three-Year Joint Capacity Enhancement, Training, and Mentoring Program with Expat to Afghan Transition Plan (Deliverable 1-9), Submitted to USAID, 88p.

21. Advanced Engineering Associates International, Inc., December 29, 2012, Joint Report on Capability and Needs Assessment of MoMP (Deliverable 1-7), Submitted to USAID, 92p.

22. Advanced Engineering Associates International, Inc., December 29, 2012, Program Status and Inception Report (Deliverable 1-1), Submitted to USAID, 11p.

23. Advanced Engineering Associates International, Inc., December 29, 2012, SGGA Performance Monitoring Plan (Deliverable 1-3), Submitted USAID, 26p.

24. Advanced Engineering Associates International, Inc., January 1, 2013 – January 31, 2013, SGGA Monthly Report, Submitted to USAID, 10p.

25. Advanced Engineering Associates International, January 1 – March 31, 2013 SGGA Quarterly Report, Submitted to USAID, 9p.

26. Advanced Engineering Associates International, Inc., January 13, 2013, PMU Agreements with MoMP, DABS and MEW Including Expat to Afghan Transition Plans (Deliverable 1-10), Submitted to USAID, 18p.

27. Advanced Engineering Associates International, Inc., January 13, 2013. Report on Completed and Issued Drilling Contract Tendering Documents (Deliverable 2-2), Submitted to USAID, 9p.

28. Advanced Engineering Associates International, Inc., January 14, 2013, Model Gas Supply Agreement (Deliverable 2-1), Submitted to USAID, 61p.

29. Advanced Engineering Associates International, Inc., January 14, 2013, Model Power Purchase Agreement (Deliverable 2), Submitted to USAID, 34p.
30. Advanced Engineering Associates International, Inc., January 15, 2013, Report on Current State of Natural Gas Sector, Submitted to USAID, 27p.

31. Advanced Engineering Associates International, Inc., January 22, 2013, Environmental Scoping Study, Submitted to USAID, 109p.

32. Advanced Engineering Associates International, Inc., February 1, 2013 – February 28, 2013, SGGA Monthly Report, Submitted to USAID, 10p.

33. Advanced Engineering Associates International, Inc., February 13, 2013, Single Window Strategy for Promoting Private Investment and Participation in the Power Sector (Deliverable 2-4), Submitted to USAID, 5p.

34. Advanced Engineering Associates International, Inc., February 14, 2013, Multiple Corporatization Models including Public Private Partnerships (Deliverable 2-3), Submitted to USAID, 56p.

35. Advanced Engineering Associates International, Inc., March 1, 2013 – March 31, 2013, SGGA Monthly Report, Submitted to USAID, 11p.

36. Advanced Engineering Associates International, Inc., April 1, 2013 – April 30, 2013, SGGA Monthly Report, Submitted to USAID, 12p.

37. Advanced Engineering Associates International, April 1 – June 30, 2013, SGGA Quarterly Report, Submitted to USAID, 9p.

38. Advanced Engineering Associates International, Inc., May 1, 2013 – May 31, 2013, SGGA Monthly Report, Submitted to USAID, 12p.

39. Advanced Engineering Associates International, Inc., May 14, 2013, Final Feasibility Report on Industrial Development and Natural Gas Market Development in Afghanistan, Submitted to USAID, 189p.

40. Advanced Engineering Associates International, Inc., May 14, 2013, Six-Month Capacity Development Evaluation Report (Deliverable 1-1), Submitted to USAID, 64p.

41. Advanced Engineering Associates International, Inc., June 1, 2013 – June 30, 2013, SGGA Monthly Report, Submitted to USAID, 12p.

42. Advanced Engineering Associates International, Inc., July 1, 2013 – July 31, 2013, SGGA Monthly Report, Submitted to USAID, 11p.

43. Advanced Engineering Associates International, Inc., July 1 – September 30, 2013 SGGA Quarterly Report, Submitted to USAID, 8p.

44. Advanced Engineering Associates International, Inc., July 5, 2013, Updated Revised Annual Work and Staffing Plan, Submitted to USAID, 22p.

45. Advanced Engineering Associates International, Inc., July 5, 2013, Updated MoMP SGDP/IL Advice and Support Action Plan with Schedule, Submitted to USAID, 9p.

46. Advanced Engineering Associates International, Inc., July 11, 2013, Updated Joint Report on Capability and Needs Assessment of MoMP (Option Period Deliverable 4), Submitted to USAID, 85p.

47. Advanced Engineering Associates International, Inc., August 1, 2013 – August 31, 2013, SGGA Monthly Report, Submitted to USAID, 11p.

48. Advanced Engineering Associates International, Inc., September 1, 2013 – September 30, 2013, SGGA Monthly Report, Submitted to USAID, 12p.

49. Advanced Engineering Associates International, Inc., October 1, 2013 – October 31, 2013, SGGA Monthly Report, Submitted to USAID, 13p.

50. Advanced Engineering Associates International, Inc., October 1 – December 31, 2013, SGGA Quarterly Report, Submitted to USAID, 9p.

51. Advanced Engineering Associates International, Inc., October 30, 2013, SGGA Annual Report Covering the period October 1, 2012 – September 30, 2013, Submitted to USAID, 14p.

52. Advanced Engineering Associates International, Inc., November 1, 2013 – November 30, 2013, SGGA Monthly Report, Submitted to USAID, 12p.

53. Advanced Engineering Associates International, Inc., December 1, 2013 – December 31, 2013, SGGA Monthly Report, Submitted to USAID, 12p.

54. Advanced Engineering Associates International, Inc., December 28, 2013, Report on Receipt and Evaluation of Bids and Award of Drilling Contract, Submitted to USAID, 13p.

55. Advanced Engineering Associates International, Inc., January 1, 2014 – January 31, 2014, SGGA Monthly Report, Submitted to USAID, 13p.

56. Advanced Engineering Associates International, Inc., January 1 – March 31, 2014, SGGA Quarterly Report, Submitted to USAID, 6p.

57. Advanced Engineering Associates International, Inc., February 1, 2014 – February 28, 2014, SGGA Monthly Report, Submitted to USAID, 13p.

58. Advanced Engineering Associates International, Inc., March 1, 2014 – March 31, 2014, SGGA Monthly Report, Submitted to USAID, 14p.

59. Advanced Engineering Associates International, Inc., April 1, 2014 – April 30, 2014, SGGA Monthly Report, Submitted to USAID, 12p.

60. Advanced Engineering Associates International, Inc., April 1 – June 30, 2014, SGGA Quarterly Report, Submitted to USAID, 7p.

61. Advanced Engineering Associates International, Inc., April 30, 2014, SGGA Semi-Annual Performance Monitoring Plan Report, Submitted to USAID, 13p.

62. Advanced Engineering Associates International, Inc., May 1, 2014 – May 31, 2014, SGGA Monthly Report, Submitted to USAID, 12p.

63. Advanced Engineering Associates International, Inc., June 1, 2014 – June 30, 2014, SGGA Monthly Report, Submitted to USAID, 13p.

64. Advanced Engineering Associates International, Inc., July 1, 2014 – July 31, 2014, SGGA Monthly Report, Submitted to USAID, 11p.

65. Advanced Engineering Associates International, Inc., July 1 – September 30, 2014, SGGA Quarterly Report, Submitted to USAID, 6p.

66. Advanced Engineering Associates International, Inc., August 1, 2014 – August 31, 2014, SGGA Monthly Report, Submitted to USAID, 12p.

67. Advanced Engineering Associates International, Inc., September 1, 2014 – September 30, 2014, SGGA Monthly Report, Submitted to USAID, 13p.

68. Advanced Engineering Associates International, Inc., October 1, 2014 – October 31, 2014, SGGA Monthly Report, Submitted to USAID, 11p.

69. Advanced Engineering Associates International, Inc., October 1 – December 31, 2014, SGGA Quarterly Report, Submitted to USAID, 9p.

70. Advanced Engineering Associates International, Inc., October 30, 2014, SGGA Annual Report Covering the Period October 1, 2013 – September 30, 2014, Submitted to USAID, 28p.

71. Advanced Engineering Associates International, Inc., November 1, 2014 – November 30, 2014, SGGA Monthly Report, Submitted to USAID, 11p.

72. Advanced Engineering Associates International, Inc., December 1, 2014 – December 31, 2014, SGGA Monthly Report, Submitted to USAID, 11p.

73. Advanced Engineering Associates International, Inc., December 31, 2014, SGGA Gas-to-Power Symposium Report (Mod 5, Section F.5.B, Deliverable 16), Submitted to USAID, 12p.

74. Advanced Engineering Associates International, Inc., January 1, 2015 – January 31, 2015, SGGA Monthly Report, Submitted to USAID, 10p.

75. Advanced Engineering Associates International, Inc., January 1 – March 31, 2015, SGGA Quarterly Report, Submitted to USAID, 7p.

76. Advanced Engineering Associates International, Inc., February 1, 2015 – February 28, 2015, SGGA Monthly Report, Submitted to USAID, 8p.

77. Advanced Engineering Associates International, Inc., February 28, 2015, Report on Best Practices for QA/QC for Gas Processing Plant (Modification 5, Section F.5.B, Deliverable 18), Submitted to USAID, 141p.

78. Advanced Engineering Associates International, Inc., March 1, 2015 – March 31, 2015, SGGA Monthly Report, Submitted to USAID, 10p.

79. Advanced Engineering Associates International, Inc., March 7, 2015, Gas Feasibility Study UPDATE, 112p.

80. Advanced Engineering Associates International, Inc., March 24, 2015, Capacity Building Activities Related to Gas Gathering (Modification 5, Section F.5.B, Deliverable 15), Submitted to USAID, 47p.

81. Advanced Engineering Associates International, Inc., April 1, 2015 – April 30, 2015, SGGA Monthly Report, Submitted to USAID, 11p.

82. Advanced Engineering Associates International, Inc., April 1 – June 30, 2015, SGGA Quarterly Report, Submitted to USAID, 7p.

83. Advanced Engineering Associates International, Inc., April 4, 2015, Report on the Elements of a Gas Processing Plant, Including Capacity Building, Best Practices, International Norms, and Risk Mitigation Strategies, Submitted to USAID, 50p.

84. Advanced Engineering Associates International, Inc., May 1, 2015 – May 31, 2015, SGGA Monthly Report, Submitted to USAID, 9p.

85. Advanced Engineering Associates International, Inc., May 31, 2015, Monitoring and Evaluation (M&E) Plan, Submitted to USAID, 17p.

86. Advanced Engineering Associates International, Inc., June 1, 2015 – June 30, 2015, SGGA Monthly Report, Submitted to USAID, 9p.

87. Advanced Engineering Associates International, Inc., July 1, 2015 – July 31, 2015, SGGA Monthly Report, Submitted to USAID, 10p.

88. Advanced Engineering Associates International, July 1 – September 30, 2015 SGGA Quarterly Report, Submitted to USAID, 11p.

89. Advanced Engineering Associates International, Inc., August 1, 2015 – August 31, 2015, SGGA Monthly Report, Submitted to USAID, 9p.

90. Advanced Engineering Associates International, Inc., October 1, 2015 – September 30, 2015, SGGA Monthly Report, Submitted to USAID, 9p.

91. Advanced Engineering Associates International, Inc., September 1 – December 31, 2015, SGGA Quarterly Report, Submitted to USAID, 11p.

92. Advanced Engineering Associates International, Inc., October 1, 2015 – October 31, 2015, SGGA Monthly Report, Submitted to USAID, 9p.

93. Advanced Engineering Associates International, Inc., October 30, 2015, SGGA Annual Report Covering the Period October 1, 2014 – September 30, 2015, Submitted to USAID, 10p.

94. Advanced Engineering Associates International, Inc., November 1, 2015 – November 30, 2015, SGGA Monthly Report, Submitted to USAID, 8p.

95. Advanced Engineering Associates International, Inc., December 1, 2015 – December 31, 2015, SGGA Monthly Report, Submitted to USAID, 9p.

96. Advanced Engineering Associates International, Inc., December 13, 2015, Response to your request for a summary update of the proposed public-private partnership for gas gathering and processing, Submitted to USAID, 1p.

97. Advanced Engineering Associates International, Inc., January 1, 2016 – January 31, 2016, SGGA Monthly Report, Submitted to USAID, 7p.

98. Advanced Engineering Associates International, Inc., January 1, 2016 – January 31, 2016, SGDP Monthly Drilling Operations Progress Report (Mod 6, Section F.5, Deliverable 13), Submitted to USAID, 13p.

99. Advanced Engineering Associates International, Inc., January 1 – March 31, 2016, SGGA Quarterly Report, Submitted to USAID, 9p.

100. Advanced Engineering Associates International, Inc., February 1, 2016 – February 29, 2016, SGGA Monthly Report, Submitted to USAID, 8p.

101. Advanced Engineering Associates International, Inc., March 1, 2016 – March 31, 2016, SGGA Monthly Report, Submitted to USAID, 9p.

102. Advanced Engineering Associates International, Inc., April 1, 2016 – April 30, 2016, SGGA Monthly Report, Submitted to USAID, 9p.

103. Advanced Engineering Associates International, April 1 – June 30, 2016 SGGA Quarterly Report, Submitted to USAID. 9p.

104. Advanced Engineering Associates International, Inc., May 1, 2016 – May 31, 2016, SGGA Monthly Report, Submitted to USAID, 10p.

105. Advanced Engineering Associates International, Inc., June 1, 2016 – June 30, 2016, SGGA Monthly Report, Submitted to USAID, 8p.

106. Advanced Engineering Associates International, Inc. July 3, 2016, Gas Field Data Evaluation and Contingent Resources Reports, Submitted to USAID, 23p.

107. Advanced Engineering Associates International, Inc., July 21, 2015, Monitoring and Evaluation (M&E) Plan, Submitted to USAID, 13p.

108. Advanced Engineering Associates International, Inc., July 23, 2015, Annual Work and Staffing Plan, Submitted to USAID, 7p.

109. Advanced Engineering Associates International, Inc., January 1 – March 31, 2016, SGGA Quarterly Report, Submitted to USAID, 6p.

110. Advanced Engineering Associates International, Inc., January 20, 2016, Request for Proposals Structuring of Public-Private Partnership for Midstream Natural Gas Operations for the Islamic Republic of Afghanistan, Submitted to USAID, 20p.

111. Advanced Engineering Associates International, Inc., 20 May 2016, Privileged and Confidential Preliminary Memorandum, Submitted to USAID, 43p.

112. Advanced Engineering Associates International, Inc., June 27, 2016, Supplemental Deliverable, Gas Reservoir Report, Core Sample Library Summary, Submitted to USAID, 11p.

113. Advance Engineering Associates International, Inc., July 3, 2016, Gas Field Data Evaluation and Contingent Resources Reports, Submitted to USAID, 382p.

114. Advanced Engineering Associates International, Inc., July 21, 2016, Feasibility Study and Preliminary Planning Proposal for Creation of an "Energy Park" Located on the Present Site of the Gerquduq Facility, Submitted to USAID, 1419p.

115. Advanced Engineering Associates International, Inc., August 2016, SGDP Dec 2011- Aug 2016 Sheberghan Gas Development Project Overview, Submitted to USAID, 3p.

116. Afghan Customs Department, (undated), Latest Tariff Rates, http://customs.mof.gov.af/en/page/1034/1035, Website accessed September 28, 2017.

117. Afghanistan Investment Support Agency (AISA), (undated) http://investinafghanistan.af/about-aisa/, Website accessed September 28, 2017.

118. Afghanistan Revenue Department, (undated), Guide 4, Tax Overview for Businesses, Investors & Individuals, http://ard.mof.gov.af/Content/files/Guide%2004%20-%20Tax%20Overview%20for%20Businesses%2C%20Investors%20%26%20Individuals(3).pdf, 18p. Website accessed September 28, 2017.

119. Anonymous, Employment Opportunities for Increased Economic Growth: Consolidated Project Appraisal Document, June 2016, Submitted to USAID, 59p.

120. Baker Botts L.L.P. May 20, 2016, Report: Options for Business and Financing Mechanisms for Gas Gathering and Processing Facilities, Submitted to Advanced Engineering Associates International, Inc., 43p.

121. Baker Botts, L.L.P, July 9, 2016, Options for Business and Financing Mechanisms for Gas Gathering and Processing Facilities Part 2: Model Transaction Documents for Public Private Partnership Submitted to Advanced Engineering Associates International, Inc., 23p.

122. Baker Hughes, 2017. https://www.bakerhughes.com/company/about. Accessed October 7, 2017

123. GIRoA, Mar 20, 2005, Custom Law - Unofficial English Translation, 94p.

124. GIRoA, June 3, 2008, Director-General Executive Agency Administrative Guidelines for the Preparation of Environmental Impact Assessments submitted to National Environment Protection, 10p.

125. GIZ, January 30, 2012, Component – Capacity Building for the Afghanistan Geological Survey, (CBAGS), 4p.

126. Gustavson Associates, July 6, 2005, Promotion of Oil and Gas Producing to the Private Sector Grant Agreement NO H007-AF Submitted to Ministry of Mine and Industry Emergency Infrastructure Reconstruction Project, 221p.

127. Gustavson Associates, December 31, 2007, Natural Gas Development Project Revised Final Report, Submitted to MoMP and ADB, 65p.

128. Gustavson Associates, March 30, 2011, Initial Environmental Examination for Gas Well Drilling and Rehabilitation Activities in the Juma/Bashikurd Fields, Submitted to USAID, 27p.

129. Gustavson Associates, June 21, 2012, Final Report Assessment of the Potential for Gas-Fired Power and its Contribution to the Resources Growth Corridor Submitted to World Bank, 55p.

130. Hagan, R. and Wnuk, C., August 13, 2017, Final performance evaluation of Mining Investment and Development for Afghan Sustainability (MIDAS), 2012-2017, 86 p. Submitted to USAID, Mission to Afghanistan, Kabul.

131. Halliburton, 2017, http://www.halliburton.com/en-US/about-us/corporate-profile/completion-and-production.page?node-id=hgeyxt5v. Accessed October 7, 2017.

132. IFP School, 2014, What are the main steps of an oil or gas field development project?, http://www.ifp-school.com/upload/docs/application/pdf/2015-02/3_main_steps_oil_gas_field_development.pdf. Accessed October 9, 2017.

133. Lerche, I., and Noeth, S., 2004, Economics of Petroleum Production - A Compendium. Volume 1: Profit & Risk; Volume 2: Value & Worth, 616p.

134. Mc Daniel & Associate Consultants, LTD., March 2016, Report Gerquduq Field, Afghanistan Submitted to Advanced Engineering Associates International, Inc., 18p.

135. McDaniel & Associates Consultants Ltd., July 28, 2016, Juma-Bashikurd Field Resources Report, Submitted to Advance Engineering Associates International, Inc., 24p.

136. Ministry of Energy and Water, June 6, 2009, Dari Version of the Water Law, http://mew.gov.af/en/page/2212/9135, Website accessed September 28, 2017.

137. Ministry of Finance, March 31, 2015, Draft Customs Law, http://customs.mof.gov.af/Content/files/customs%20law.pdf, Website accessed September 28, 2017.

138. Ministry of Finance, (undated), Investor's guide, http://mfa.gov.af/Content/files/Investor%20Guide.pdf, Website accessed September 28, 2017.

139. Ministry of Justice, August 16, 2014, Minerals Law Translated by Legal Directorate of the Ministry of Mines & Petroleum, 53p.

140. Ministry of Mines and Petroleum, July 2013, Investor's Guide: Information on Laws and Procedures to Support Investors Working in Afghanistan, http://mom.gov.af/Content/files/Investors_Guide.pdf, 75p. Website accessed September 28, 2017.

141. Ministry of Mines and Petroleum, March 2014, Hydrocarbons Law, 27p.

142. Ministry of Mines and Petroleum, April 2014, Hydrocarbons Regulations, 27p.

143. Ministry of Rural Rehabilitation and Development Islamic Republic of Afghanistan, 2013, Building Manual, 120p.

144. National Environmental Protection Agency, June 2008, Administrative Guidelines for the Preparation of Environmental Impact Assessments http://mom.gov.af/Content/files/Administrative_Guidelines_EIAs.pdf, Website accessed September 28, 2017.

145. RAND Corporation, 2016, TFBSO Lesson From Afghanistan Submitted Secretary of State, U.S Department of Defense, 114p.

146. Samuel Hall, 2016, Shaping Afghanistan Natural Resources Strategy Submitted to MoMP, 121p.

147. Saudi Aramco, 2017, http://www.saudiaramco.com/en/home.html. Accessed October 7, 2017.

148. Schlumberger, 2017, Field Development Planning, http://www.slb.com/services/production/production_optimization/production_engineering_services/field_development_planning.aspx. Accessed October 7, 2017.

149. SIGAR, January 15, 2010, Afghanistan Energy Supply Has Increased but an Updated Master Plan Is Needed and Delays and Sustainability Concerns Remain, 27p.

150. SIGAR, April 2015, Afghanistan's Mineral, Oil, and Gas Industries: Unless U.S. Agencies Act Soon to Sustain Investments Made, $488 Million in Funding is at Risk Submitted to The Honorable John F. Kerry Secretary of State The Honorable Ashton B. Carter Secretary of Defense The Honorable P. Michael McKinley U.S. Ambassador to Afghanistan The Honorable Alfonso E. Lenhardt, Acting Administrator, U.S. Agency for International Development Mr. William Hammink USAID Mission Director for Afghanistan, 36p.

151. SIGAR, January 2016, Afghanistan's Oil, Gas, and Minerals Industries: $488 Million in U.S. Efforts Show Limited Progress Overall, and Challenges Prevent Further Investment and Growth Submitted to The Honorable John F. Kerry Secretary of State The Honorable Ashton B. Carter Secretary of Defense the Honorable P. Michael McKinley U.S. Ambassador to Afghanistan The Honorable Gayle E. Smith Administrator, U.S. Agency for International Development Mr. Herbert B. Smith USAID Mission Director for Afghanistan, 43p.

152. SIGAR, Oct 30, 2016, Quarterly Report to the United States Congress Submitted to Congress and Secretariat of State, 268p.

153. UNICON, November 14, 2016, Afghan Gas Enterprises- Assessment Report Assessment of Afghan Gas Enterprise with Findings and Recommendations Submitted to MoMP, 16p.

154. United States Institute of Peace, July 24, 2017, Illegal Extraction of Minerals as a Driver of Conflict in Afghanistan, https://www.usip.org/publications/2017/07/illegal-extraction-minerals-driver-conflict-afghanistan, Website accessed September 28, 2017.

155. United States Institute of Peace, September 21, 2017, Reviving Commercial Development of Afghanistan's Aynak Copper Resources, https://www.usip.org/publications/2017/09/reviving-commercial-development-afghanistans-aynak-copper-resource, Website accessed September 28, 2017.

156. Wikipedia, 2017, Hydrocarbon Exploration, https://en.wikipedia.org/wiki/Hydrocarbon_exploration. Accessed October 7, 2017

157. World Intellectual Property Organization, March 20, 2005, Unofficial English Translation of the Draft Afghan Customs Law. http://www.wipo.int/edocs/lexdocs/laws/en/af/af003en.pdf, Website accessed September 28, 2017.

ANNEX VII. DOCUMENT RELEVANCE TABLE (EQ 2)

The following SGGA documents and deliverables provided to us by USAID have been reviewed. The McDaniel report is discussed in detail under Question 5.

FINDINGS	RELEVANCE	RECOMMENDATIONS
Administrative Documents		
1: Weekly, monthly, quarterly, annual and final reports were reviewed.	1: Relevant: These reports provide critical insights into the day to day obstacles to implementation faced by project team members. Obstacles reported by SGGA are consistent with obstacles reported by other implementation teams like MIDAS. Review and analysis of these documents will provide future project implementers early warning of the problems they are likely to encounter when working with MoMP. Private sector extractives investors who have to interact with MoMP will especially benefit from understanding MoMP behavior.	1: Put these operational reports on the web to make them available to others planning to work or interact with MoMP.
2: Documents like work plans, staffing plans, monitoring plans, purchasing plans and other similar administrative documents were reviewed. Specifically reviewed were Deliverable 1, 1.1, 1.2, 1.3, 1.4, 1.5, 1.8, 2, 2.1, 2.2, 2.3, AEAI external deliverables review, draft statement on the reserves study, and the SGGA semiannual PMPs for April and November 2013.	2: Not Relevant: Administrative documents such as these were relevant to the administration of the project but become irrelevant once the project is concluded.	2: No need to make these documents available to other users.
SGGA Activity Support Documents		
3: Environmental Scoping Study (Deliverable 2-7) December 17, 2012 describes EISA scoping.	3: Not Relevant: Deliverable 2-7 is substantially identical to Deliverable 2-8 dated approximately one month later.	3: Ignore this version in favor of the more

		recently dated Deliverable 2-8.
4: Model Gas Supply Agreement (Deliverable 2-1) January 14, 2013 is an example of a basic industry standard gas supply agreement signed between a gas supplier and a gas purchaser.	4: Relevant: Although specific provisions in this agreement will need to be customized during negotiations, this model serves as a good starting point. It is presented in a format that will be recognizable to international investors and financiers.	4: Make the report available on the web.
5: Model Power Purchase Agreement (Deliverable 2-2) January 14, 2013 is an example of a basic industry standard electricity purchase agreement signed between an electricity supplier and a purchaser.	5: Relevant: Although specific provisions in this agreement will need to be customized during negotiations, this model serves as a good starting point. It is presented in a format that will be recognizable to international investors and financiers.	5: Make the report available on the web.
6: Environmental Scoping Study (Final Environmental Terms of Reference for Environmental Assessment/Evaluation) (Deliverable 2-8) January 22, 2013. The Environmental Law of 2007 is the current applicable law as of September 2017.	6: Relevant: Though Environmental ESIA (Environmental and Social Impact Assessment) procedural regulations are likely to change and become better defined as time passes, this TOR is a good compilation of NEPA and international requirements for ESIA studies. Access to this document will reduce planning and preparation costs for future investors needing to comply with NEPA requirements.	6: Put the TOR on the web to make it available to future investors.
7: Multiple Corporatization Models including Public Private Partnerships (Deliverable 2-3) February 14, 2013 presents a range of corporatization strategies and structures for AGE.	7: Relevant: This document represents one of several plans prepared by various donors to reorganize, corporatize, and/or privatize MoMP's hydrocarbon units.	7: This document should be made publicly available so that future donors have easy access to existing corporatization plans to avoid duplication of effort.
Capacity Building and Transfer Documents		

8: Three-Year Joint Capacity Enhancement, Training, and Mentoring Program with Expat to Afghan Transition Plan (Deliverable 1-9) December 26, 2012 outlines the strategy that SGGA planned to pursue to develop and transfer gas sector capabilities to MoMP.	8: Relevant: This plan may or may not be specifically relevant to future capacity development plans for MoMP. However, comparison of the capacity building plan as initially envisioned by SGGA with actual outcomes reported in the monthly reports could help future designers develop more effective implementation strategies.	8: Make the report available on the web.
9: Joint Report on Capability and Needs Assessment of MoMP (Deliverable 1-7) December 29, 2012 is an assessment of staff capabilities in AGE and OGS and includes a conceptual plan for organizing a Government Business Unit (GBU) responsible for administering and operating MoMP's gas exploration, development and sales responsibilities.	9: Not Relevant: This document represents one of several plans prepared by various donors to reorganize, corporatize, and/or privatize MoMP's hydrocarbon units. This report is replaced by an updated version dated July 11, 2013.	9: The July 13, 2013 version of this document should be made publicly available so that future donors have easy access to existing corporatization plans to avoid duplication of effort.
10: PMU Agreements with MoMP, DABS and MEW Including Expat to Afghan Transition Plans (Deliverable 1-10) January 13, 2013 outlines the strategy that SGGA planned to pursue to develop and transfer gas sector capabilities to MoMP.	10: Relevant: This plan may or may not be specifically relevant to future capacity development plans for MoMP. However, comparison of the capacity building plan as initially envisioned by SGGA with actual outcomes reported in the monthly reports could help future designers develop more effective implementation strategies.	10: Make the report available on the web.
11: Six-Month Capacity Development Evaluation Report (Deliverable 1-11) (May 14, 2013) is a record of training delivered and training outcomes.	11: Relevant: Given the extreme degree of turnover observed in MoMP, it is likely that fewer and fewer SGGA-trained staff will remain employed. Nevertheless, this report establishes a benchmark of assessed organizational capabilities that future capacity assessors can use to compare to their own needs and outcome assessments.	11: Make the report available on the web.

12: Updated Joint Report on Capability and Needs Assessment of MoMP (Option Period Deliverable 4) (July 11, 2013) is an assessment of staff capabilities in AGE and OGS and includes a conceptual plan for organizing a GBU responsible for administering and operating MoMP's gas exploration, development and sales responsibilities.	12: Relevant: This document represents one of several plans prepared by various donors to reorganize, corporatize, and/or privatize MoMP's hydrocarbon units.	12: This document should be made publicly available so that future donors have easy access to existing corporatization plans to avoid duplication of effort.
13: Capacity Building Activities Related to Gas Gathering (Modification 5, Section F.5.B, Deliverable 15) Submitted: March 24, 2015 assesses the capability of AGE to operate the facilities and equipment characteristic of a modern gas production company.	13: Relevant: AGE personnel will need months of technical and administrative training before they are qualified to run a modern gas production company. The report lays out a series of required long-term trainings, but much of this training cannot be delivered in Afghanistan because there is no existing modern infrastructure on which to provide the necessary training.	13: This report should be online and available to the public.
Technical Documents		
14: Report on Current State of Natural Gas Sector (Deliverable 3-1) (January 15, 2013) reports on Afghan and regional gas market conditions in early 2013.	14: Relevant: This assessment is dated, but still contains useful information. As the years pass, the utility of this report will decline.	14: This report should be made available to the public.
15: Single Window Strategy for Promoting Private Investment and Participation in the Power Sector (Deliverable 2-4) (February 13, 2013) presents a concept where a power investor can go to a single location to get access to and advice and guidance on all of the paperwork and procedures that must be followed to be qualified to invest in the Afghan electrical power sector.	15: Relevant: The single window concept is an excellent idea that has been used successfully in other countries to accelerate and simplify Foreign Direct Investment (FDI). Afghanistan currently has several single windows including the Afghanistan Investment Support Agency (AISA), Afghanistan Chambers of Commerce and Industries (ACCI), MoMP among others. Conversations with investors who have attempted to use these windows indicate that the windows are rarely current on the latest laws and regulations, Ministries do not often actually understand the content of the laws that they are supposed to administer, and continuing soviet-style mindsets	15: This document should be made publicly available so that future donors have easy access to existing corporatization plans to avoid duplication of effort.

	maintained by many Ministry employees continues to create obstacles that the single window was designed to eliminate.	
16: Final Feasibility Report on Industrial Development and Natural Gas Market Development in Afghanistan (Deliverable 3-2), submitted May 14, 2013) provides a roadmap for the development of gas utilization in various potential Afghan industrial sectors.	16: Relevant: The report provides an excellent outline of industrial gas use opportunities in a developing Afghanistan (assuming increased gas production actually materializes).	16: This report should be made available to the public.
17: SGGA Gas-to-Power Symposium Report (Mod 5, Section F.5.B, Deliverable 16) (December 31, 2014) reports on the outcome of a gathering of Afghan government officials, potential private sector investors, USAID officials, and advisors sponsored by several donors to discuss opportunities in power generation and natural gas gathering and processing.	17: Relevant: The lack of effective Afghan government engagement prevents these projects from moving forward. Multiple investors have submitted proposals to the Afghan government, but in each case GIRoA has failed to provide an appropriate response.	17: The document should be made publicly available.
18: Report on Best Practices for QA/QC for Gas Processing Plant (Modification 5, Section F.5.B, Deliverable) Submitted February 28, 2015) provides a basic overview of what is generally required to outfit and operate a modern gas processing facility.	18: Relevant: This document serves as a basic reference to anyone in MoMP/AGE or the international investment/donor community on the technical requirements for planning, outfitting and operating a gas processing plant in Afghanistan.	18: This report should be made available to the public.

19: Gas Feasibility Study UPDATE (Modification 5 Section B. Task 5 Deliverable 20) Submitted: March 7, 2015 identifies various sources of demand for AGE produced gas, AGE and international gas pricing regimes, production and distribution costs (current as of 2015), regional gas market conditions, and AGE cost recovery statistics.	19: Relevant: AGE operates on the SOE economic model and does not understand basic economic and geologic concepts, i.e. the need for continuous exploration and development to replace depleting resources, the need to set some proportion of profits aside to fund exploration and to replace/upgrade aging and deteriorating infrastructure and processing facilities, and the critical need to price gas at a level that can sustain an independent AGE without the need for government subsidies.	19: This report contains critical information about the state of the gas market in Afghanistan and the regional gas conditions. This report should be available on the web to be studies by anyone who might be considering investing in Afghanistan's gas sector.
20: Report on the Elements of a Gas Processing Plant, Including Capacity Building, Best Practices, International Norms, and Risk Mitigation Strategies (Modification 5, Section F.5.B, Deliverable 17) Submitted April 4, 2015 details natural gas processing and gas gathering best practices and training.	20: Relevant: This document provides a basic overview of best practices in various gas processing functions for MoMP personnel.	20: The document should be made publicly available.
21: Report: Options for Business and Financing Mechanisms for Gas Gathering and Processing Facilities (Mod 6, Section F.5, Deliverables 8 and 9, Part 1) Submitted: May 20, 2016 provides a review of multiple model PPP structures with a discussion of the pros and cons of each model.	21: Relevant: The information contained in this document will be of interest to businessmen and investors who might be considering the PPP approach to investing in Afghanistan.	21: This report should be made available to the public.
22: Supplemental Deliverable, Gas Reserves Report, Core Sample Library Summary June 27, 2016 describes the efforts to preserve existing oil and gas field core so that it is available for future study.	22: Relevant: The core was moved from existing deteriorating boxes and organized and placed into new, purpose build boxes in a modernized core storage warehouse. However, based on the description of the process, it appears that the core was transferred from the old box into the new box without regard to whether or not the actual core was properly placed in the old boxes. In fact, CW studied that core in 2013. Most of that core	22: The core is a useful teaching tool, but at this point is not a reliable indicator of down-hole geology.

	was scrambled in the original boxes so the original labeling is unreliable.	
23: Options for Business and Financing Mechanisms for Gas Gathering and Processing Facilities Part 2: Model Transaction Documents for Public-Private Partnership (Mod 6, Section F.5, Deliverables 8 and 9, Part 2) Submitted: July 9, 2016 provides a very detailed bidding document for a proposed PPP between the Afghan Government a potential PPP partner.	23: Relevant but Parts Confidential: Because SGGA could not get meaningful input from MoMP regarding Afghan Government preference for specific PPP models proposed in the Options for Business and Financing Mechanisms (Document T), The SGGA contractor (Baker Botts) unilaterally chose a PPP model that, based on its professional experience, is most appropriate for the current conditions in Afghanistan. This document is an excellent reference for MoMP regarding the requirements for tendering a very complex, very large scale industrial projects. The document is based on similar PPP tenders conducted by other governments. If the Afghan Government were to consider tendering the Energy Park PPP, the existing document can be finalized with a minimum of effort.	23: Because this document can be used more or less as is (with the addition of finalizing information), the PPP tender SHOULD NOT be released to the public until such time they are used to tender.
24: Feasibility Study and Preliminary Planning Proposal for Creation of an "Energy Park" Located on the Present Site of the Gerquduq Facility (Task 2, Deliverable 10B) July 21, 2016 provides a basic checklist of the industrial plants that must be built to gather, process, distribute, and use Afghan gas in a centralized energy hub near to resource availability. In addition to providing a basic overview of plant facilities that should be constructed, the report discusses the pros and cons of alternative plant	24: Relevant: (1) Because of the failure of Ministries to Communicate with one another, Ministries to communicate internally among internal Directorates, and an inability to maintain engaged IT Departments, updates and changes in Laws and Implementing Regulations are always posted to Ministry websites. Official websites often contain dated and inaccurate information. Anyone interested in investing in Afghanistan can use guides such as this Energy Hub	24: This report should be made available to the public.

designs, AND, more importantly, provides a review of the many of the Afghan laws and regulations that must be addressed and where and how to address them by anyone contemplating building such an energy park. These laws and regulations are reviewed in the 25 Appendices to the document. Most of the cited laws and regulations remain valid as of the time of this assessment, but some laws that should have been included are surprisingly absent. An Appendix by Appendix review is provided as follows: (A1) contains the most current version of the Law on Private Investment (2005); (A2) contains the most current version of the Commercial Arbitration Law (2007); (A3) contains the most current version of the Environmental Law (2007), but does not contain reference to the Administrative Guidelines for the Preparation of Environmental Impact Assessments which is found at http://mom.gov.af/Content/files/Administrative_Guidelines_EIAs.pdf; (A4) contains the most current version of the Environmental Assessment Regulations (2008); (A5) contains the most current version of the Hydrocarbon Law of 2009 (translated 2014); (A6) contains the most current version of the Hydrocarbon Regulations of 2009 (translated 2014); (A7) contains the most current version of the Regulating Law of Electrical Energy Services (2015); (A8) contains the most current version of the Income Tax Law (2009);	document and other similar documents to obtain a general overview of Afghan Laws and Regulations, but competent Afghan legal advice will be essential as the investment effort develops. (2) Laws governing related aspects of the same activity issued by different Ministries can contradict and conflict with one another. Investors may find that these laws may first need to be reconciled between Ministries which could potentially involve Parliamentary action. (3) Afghan Ministry websites, in addition to containing inaccurate information are often inaccessible because the computers are turned off or the sites are "Under Construction." (4) There has now been reference to the Afghan Water Law (http://mew.gov.af/en/page/2212/9135) in the Energy Hub document. The Hub will be a prodigious water consumer when it is constructed and will have to conform to the Water Law. (5) There are a number of other laws like the Banking Law, Corporation Law, Contracts Law, etc. that could potentially be relevant to the Energy Hub. Investors should review the AISA website (http://investinafghanistan.af/about-aisa/) carefully when preparing to invest. (6) Guides similar to Appendix 23 have been prepared by Adam Smith for other Ministries and should be reviewed since they contain ancillary information that may be relevant to investors and businessmen. These can be found at: http://ard.mof.gov.af/Content/files/Guide%2004%20-%20Tax%20Overview%20for%20Businesses%2C%20Investors%20%26%20Individuals(3).pdf;	

(A9) contains the most current version of the Income Tax Manual (2010); (A10) the Draft Customs Law of 2004 is presented in the report but there is a Dari version of the law dated March 31, 2005 (http://customs.mof.gov.af/Content/files/customs%20law.pdf) and an English translation dated March 20, 2005 (http://www.wipo.int/edocs/lexdocs/laws/en/af/af003en.pdf); (A11) The most current Tariff Tables appear to have been published in 2014 which superseded the 2010 tables presented in the report; (A12) contains the most current version of the Law on the Preservation of Afghanistan's Cultural Artifacts (2004); (A13) the MRRD Building Manual is missing in both copies of the Energy Hub report provided to us. The 2013 version of the Building Manual can be found at http://mrrd.gov.af/Content/files/Building%20Manual.pdf; (A14) the review of AISA Licensing Procedures and Requirements provided are undated but appear current. Review of the AISA website (http://investinafghanistan.af/about-aisa/) should contain the most current documents for investors; (A15) provides a description of the process that must be followed to obtain a TIN current as of July 2016; (A16) the Procedures for Obtaining Land in an Industrial Park Administered by the MoMP are current as of July 2016;	http://mfa.gov.af/Content/files/Investor%20Guide.pdf; and http://mom.gov.af/Content/files/Investors_Guide.pdf.	

(A17) is an exact duplicate of Appendix 4; (A18) the National Environmental Impact Assessment Policy appears current. The report version is dated 2009, but the identical policy on the web is dated 2007; (A19) the NEPA waste Management License Procedure appears accurate as of July 2016; (A20) NEPA was reported to have been uncooperative with SGGA in providing this information. The procedures provided in the report are believed accurate as of July 2016; (A21) contains the most current version of Electricity Regulatory Authority Licensing; (A22) the MEW Renovation, Expansion and Digging Deep Well Procedures appear to be current as of July 2016; (A23) the tax overview for business and investor's guide appears accurate; (A24) the Customs Procedure Guide appears accurate as of July 2016. The Afghan Customs website (http://customs.mof.gov.af/en/page/1034/1035) should have the most current information; (A25) the Customs Valuation Guide is current as of 2016.		

25: Juma-Bashikurd Field Resources Report (Modification 6, Section F.5, Task 2, Deliverable 13 Submitted: July 28, 2016 provides an assessment of the potential gas reserves of the Juma-Bashikurd Gas Field.	25: The report is based on best available data. The report could have been more definitive if TPAO had been willing to conduct industry standard well testing procedures (acid stimulation), the MoMP project manager more forceful in insisting on TPAO compliance, and AGE and MoMP were more forthcoming in providing existing historical data.	25: Though disclosure requirements pertaining to well field geologic & production data are complex, ultimately the Juma-Bashikurd wells were drilled with U.S. public monies, so the data should be publicly available barring agreements to the contrary between the U.S. and Afghan Governments.

ANNEX VIII. INDIVIDUALS INTERVIEWED OR CONTACTED

Individuals Interviewed

#	Date	Position Title or Description	Organization
USAID Staff[24]			
1	Aug/14/2017	M&E Senior Specialist, OPPD	USAID
2	Aug/14/2017	Deputy Dir., OI	USAID
3	Aug/14/2017	Program Mgt. Unit Lead/OEG-OI	USAID
4	Aug/14/2017	Deputy Team Lead (M&E)/OPPD/	USAID
5	Aug/14/2017	Sr. Energy Advisor, OEG	USAID
6	Aug/20/2017	Office Head, OI	USAID
7	Aug/20/2017	Project Mgt. Specialist (M&E), OPPD	USAID
8	Aug/20/2017	M&E, OI	USAID
9	Aug/20/2017	Acting Head, M&E, OPPD	USAID
Key Informants			
1	Aug/21/2017	Legal Advisor MoMP	MoMP
2	Aug/21/2017	Managing Director	CORE DRILLERS
3	Aug/22/2017	Past Program Mineral Specialist	CORE DRILLERS
4	Aug/26/2017	Technical Staff APA	MoMP
5	Aug/26/2017	Consultant	UNICON
6	Aug/26/2017	Technical Expert APA	MoMP
7	Aug/26/2017	Administrator	Investment Promotion Directorate
8	Aug/27/2017	Acting Director APA	APA

[24] USAID personnel were spoken with as a part of the in-briefing, midterm briefing, or final exit presentation. For this reason, they are not included in the main document as key informants interviewed.

9	Aug/27/2017	Coordinator APA	APA
10	Aug/27/2017	Field Geologist	MoMP
11	Aug/27/2017	Contract management (MoMP)	APA
12	Aug/27/2017	Administrator	Policy Directorate
13	Aug/28/2017	Staff of Legal Directorate	MoMP
14	Aug/28/2017	CEO	International Resource Development Co.
15	Aug/29/2017	Acting Director, Legal Director	MoMP
16	Aug/30/3017	Head of Gender Department	MoMP
17	Aug/30/3017	Manager, Gender Dept.	MoMP
18	Sep/5/2017	Investment promotion specialist	Promotion Directorate, MoMP
19	Sep/6/2017	IT Director	MoMP
20	Sep/14/2017	Foreign Advisor	Adam Smith
21	Sep/10/2017	Technical Officer	MoMP
22	Sep/10/2017	Member of Sheberghan Gas Office	MoMP
23	Sep/10/2017	Acting Policy Director	MoMP
24	Sep/10/2017	Employee at HR Directorate	MoMP
25	Sep/11/2017	Member Sheberghan Gas Directorate	MoMP
26	Sep/11/2017	Investment Promotion Directorate	MoMP
27	Sep/11/2017	Member of APA	MoMP
28	Sep/13/2017	Assistant Teacher	Polytechnic University Oil and Gas Dept.
29	Sep/13/2017	Teacher	Polytechnic University
30	Sep/13/2017	Teacher	Polytechnic University
31	Sep/13/2017	Teacher	Kabul University

32	Sep/15/2017	COP for TT's Engineering Support Project	TT's Engineering Support Project
33	Sep/16/2017	Investment Specialist	MoMP
34	Sep/17/2017	Well Operating Person	AGE
35	Sep/17/2017	Senior Lead Operator	AGE
36	Sep/18/2017	Extractor of Condensate Gas	AGE
37	Sep/18/2017	Sulfur Processor	AGE
38	Sep/18/2017	Computer Teacher	Private
39	Sep/18/2017	Interpretation Engineer	AGE
40	Sep/18/2017	Head of Power Section	AGE
41	Sep/18/2017	Geophysics Engineer	NHU
42	Sep/18/2017	Driller	NHU
43	Sep/19/2017	General Director of APA	MoMP
44	Sep/21/2017	Project Manager MoMP	MoMP
45	Sep/23/2017	Project Manager MoMP	MoMP

Individuals Contacted but not interviewed

#	Date	Title	Organization
1	Aug/21/2017	Civilian Technical Assistance Program Advisor to MoMP	MoMP
2	Aug/21/2017	Director MoMP	MoMP
3	Aug/26/2017	Geologist	US Dept Interior
4	Aug/26/2017	Geologist	US Dept Interior
5	Aug/26/2017	Geologist	US Dept Interior
6	Aug/26/2017	Geologist	Oil Exploration Co.
7	Aug/26/2017	Consultant	UNICON
8	Aug/26/2017	Consultant	UNICON
9	Aug/26/2017	Consultant	UNICON

10	Aug/28/2017	Legal adviser to the MoMP	MoMP
11	Aug/29/2017	COP	AEAI
12	Sep/7/2017	Economist	Adam Smith
13	Sep/7/2017	Economist	Adam Smith
14	Sep/7/2017	Policy Director	MoMP
15	Sep/10/2017	Member of Policy Directorate	MoMP
16	Sep/16/2017	Inspection Engineer	MoMP
17	Sep/16/2017	Oil and Gas Investment Promotion	MoMP
18	Sep/16/2017	Project Development Specialist	MoMP
19	Sep/16/2017	Program Officer	MoMP
20	Sep/16/2017	Inspector	Inspection MoMP
21	Sep/16/2017	Oil and Gas Promotion Expert	Hydrocarbon MoMP
22	Sep/16/2017	Petroleum Engineer	ADPA
23	Sep/16/2017	Engineer	OGE
24	Sep/16/2017	Student	Kabul University
25	Sep/16/2017	Student	Kabul University
26	Sep/17/2017	In charge of Sulfur Removal Unit at GD	AGE
27	Sep/17/2017	Exploitation Site Manager AGE ore	AGE
28	Sep/17/2017	Head of water & steam supplier	AGE
29	Sep/17/2017	In charge of Exploitation	AGE
30	Sep/17/2017	Head of Gas Exploitation I & II points of KHGK	AGE
31	Sep/17/2017	Dehydration of Gas	AGE
32	Sep/17/2017	Dehydration of Gas	AGE
33	Sep/17/2017	Director of well drilling for Gas	AGE
34	Sep/17/2017	In charge of KHGK power Section	AGE
35	Sep/17/2017	In charge of Yatem Taq extraction	AGE
36	Sep/17/2017	In charge of Yatem Taq extraction	AGE
37	Sep/18/2017	Sulfur removal-II, operator	AGE
38	Sep/18/2017	Dispatching of Khwaja Jokardok	AGE
39	Sep/18/2017	Laboratory Manager	Afghan Gas Directorate

40	Sep/18/2017	In charge of cooler compressor	AGE
41	Sep/18/2017	Mechanic Worker	Directorate of group oil & gas
42	Sep/18/2017	Dispatching of Khwaja Jorkodoq	AGE
43	Sep/18/2017	Site Geologist	NHU
44	Sep/18/2017	Logging	Oil and Gas
45	Sep/18/2017	Computer Program and Admin Task	Central Statistical Office
46	Sep/18/2017	Sulfur Removal Operator	AGE
47	Sep/18/2017	Electro Mechanic Engineer	AGE
48	Sep/18/2017	Mechanic	Private
49	Sep/18/2017	In charge of Khwaja Jokardak Power cap	AGE
50	Sep/18/2017	Logging Geologist	NHU
51	Sep/18/2017	Skilled worker	ECCL
52	Sep/18/2017	In charge of Laboratory	AGE
53	Sep/18/2017	Geologist Engineer	NHU
54	Sep/18/2017	Employee in Gas Gathering Point 2	AGE
55	Sep/18/2017	Site Geologist	NHU
56	Sep/18/2017	Drilling Engineer	Directorate oil & gas
57	Sep/18/2017	Retired Man	MoMP
58	Sep/18/2017	Head of Repairing	AGE
59	Sep/18/2017	Automatic Keeping Engineer Jarkuduk	AGE

ANNEX IX. FINDINGS ON OVERALL MINING SECTOR REFORMS

The MoMP governs a range of extractives in Afghanistan, and many of the ET's findings related to that governance are as applicable to the mining sector as they are to the hydrocarbon sector. For example, in both its previous evaluation of the mining-based USAID MIDAS project, and its current evaluation of SGGA, the ET identified the need for improvements in both sectors related to GIRoA/MoMP's approach and capacity for soliciting partners; openly involving the private sector; tendering and/or managing licenses and rights; and developing or adopting realistic revenue streams for investors, communities and the government. Because reforming these areas will likely be a long-term endeavor requiring significant efforts by both the donor community and GIRoA, the ET's recommendations, especially reforms to its professional and technical training, and most importantly, its small-scale mining sector, are designed to be implemented in shorter timeframes and produce overall continuing sustainable benefits for Afghanistan's extractives sectors.

Mining Sector Reforms:

A Changing Approach Could Yield Broader Benefits for Afghan Extractives

Given that improving governance of extractives is likely to be a long-term process, the ET suggests an alternative approach that might yield important results sooner and may potentially accelerate implementation of longer-term goals across Afghanistan's extractives industries. Specifically, certain reforms to MoMP mining sector policies could not only produce immediate, low-cost, and high-impact benefits within the sector, but also lay the foundation for application of such reforms in the future to the more capital-intensive hydrocarbon sector. These differing timeframes are based on key distinctions between the two sectors, including that inexpensive interventions for developing the hydrocarbons sector are not possible, but potentially many (comparatively) inexpensive actions are possible to accelerate the development of mining. Mining development also has the added advantage of potentially providing economic opportunity everywhere in Afghanistan, whereas hydrocarbon development is currently limited to only a few places.

Given such differences, small scale mining (and its governance) is the one economic activity that could be expanded quickly to provide tens if not hundreds of thousands of new jobs within the space of a year or two[25]. The current GIRoA stance that small scale mining is illegal without a permit (that is very difficult to obtain) ignores realities on the ground, is impossible to enforce, and is harmful to many rural communities that depend on mining for their livelihoods. GIRoA's mining policies are resulting in a rapid increase in the pace of illegal mining, and the ceding of control of its minerals to local warlords and insurgents. According to KIs who spoke with the ET, there are concerns that such current GIRoA policies will allow these operations to become so entrenched and profitable that local power brokers will be in a position to ignore the writ of the Afghan government entirely.

If instead GIRoA promoted and supported small scale mining, it would significantly increase its relevancy to its rural communities. Even if the operation of mines by individuals is not legalized, there are many strategies that GIRoA can adopt to: (a) recognize miner rights to continue mining, (b) improve mine income to miners, and (c) capture a fair share of taxes for the national and local treasuries. For high-value commodities like gold and gemstones, setting up government-run buying centers that give miners a fair profit for their product, but also pay a fair price that captures tax revenues for the local, provincial and national governments can make GIRoA

[25] Although one would strive for controlled development of small scale mining, there is a well-established history of rapid employment development in this sector, particularly in gold, for example: California gold rush of 1849 – 100,000 people in 24 months; the Klondike 40,000 people in 12 months; New South Wales, 2,000 people in 2 months and 140,000 in 120 months; Victorian gold rush (Australia) 425,000 in 120 months, and many, many more examples could be cited.

immediately more relevant to rural communities. For lower-value commodities like chromite and certain other industrial minerals, such as coal, government-sanctioned aggregators/processors can be licensed.

As an added service, the GIRoA can make the process of acquiring a legal license to mine easier and provide help at these central buying facilities to register. As an added incentive to get licenses, licensees could be offered lower taxes and/or technical help to make their mines safer and more productive. Miners who hold licenses also have something of value that they can sell to mining Majors once larger mining concerns start coming to Afghanistan. Priority action to facilitate the normalization and licensing of small-scale mining would have the added advantage of strengthening MoMP's ability to manage mining rights, licenses, taxation and regulate practices for improved subsequent governance of the larger, more capital-intensive, yet potentially more profitable petrochemical and extractives investments.

Helping GIRoA to develop and implement strategies to formalize its small-scale mining sector[26], perhaps more than any other single action, also has the potential to introduce the kinds of changes to the Afghan economy that will provide significant support to the Afghanistan National Army/DOD effort to combat the growing insurgency in Afghanistan. Besides this key action, other activities USAID might consider undertaking, that do not involve USAID supporting an actual exploration program but rather assistance to mining Juniors to undertake exploration, include:

The current Mining Law of 2014 makes AGS GIRoA's a de facto mining Junior[27]. USAID should support future field-based training for AGS personnel to help them fulfill this function.

USAID should help GIRoA develop a functional cadaster. The WB effort to build one was unsuccessful.

USAID should include in potential future support programs access by GIRoA to acknowledged extractives industry legal specialists to help it evaluate bids and write best-practice development contracts.

USAID can support GIRoA by helping to develop a comprehensive inventory of Afghanistan's illegal mines. This information would also benefit mining Juniors and can easily be compiled using remote sensing.

AGS holds a wealth of resource data. USAID should support development of a dissemination strategy that enables GIRoA to make this information freely available to potential investors and mining Juniors.

From time to time, USAID may have the opportunity to support a specific, narrowly constrained activity (e.g. defray AGS deposit prospecting costs such a certified lab analyses, support AGS prospecting equipment maintenance (like existing Z-Tem and gravimeters), train small scale gemstone miners to improve mine safety, productivity and gemstone quality, etc.) that has the potential to broadly and positively impact the development of the extractives sector. USAID should consider making these investments as appropriate.

The current low level and volume of technical and linked business expertise available to either the MoMP or to the private sector is a continuing constraint on development. USAID could collaborate with other donors to increase both the quality and volume of technical graduates who have gained employment ready experience through co-op or internship programs in the private sector. Concurrent additional efforts by USAID to involve expatriate female technical instructors and otherwise promote increased female technical graduates will likely yield long lasting capacity improvements in the sector.

[26] This has been recommended by the United States Institute for Peace - (2017)

[27] Mining Juniors are mineral exploration companies that specialize in exploring for new mineral deposits. Mining Juniors rarely develop mines. Their role is to discover new deposits that can be sold to larger mining companies (called mining Majors). Majors specialize in mining and rarely, if ever, conduct exploration for new properties. Majors acquire their properties from Juniors.

ANNEX X. CONFLICT OF INTEREST DISCLOSURE FORMS

Note: Personal Identifiable Information (PII) deleted from public version due to privacy concerns.

ANNEX XI. SGGA-OFFERED TRAININGS DETAIL AS LISTED IN REPORTS

#	TRAINING NAME	DATE OF TRAINING (MONTH/YEAR)	ORGANIZATION RECEIVING TRAINING	NUMBER OF PARTICIPANTS
1	Preparation of required monthly SGDP reports to USAID	5/15	MoMP	NA
2	SGGA's basic health and safety course	3/16 - 5/16	AGE, OGS	59 male and 19 female students
3	Mentoring/coaching for developing sustainable safety and health programs	1/16 - 2/16	AGE, OGS	NA
4	United States Occupational Safety & Health Administration (OSHA): A.) 192-Hour Oil & Gas Safety & Health Manager training; B.) 70-Hour Oil & Gas Safety & Health Train-the-Trainer course (distance learning)	8/15 – 2/16	MoMP	4 trainees finished
5	Processing Requirements for Paying SGDP Funded Invoices (refresher course)	6/15	APA's Gas Development Office (GDO), APA's Finance Department	NA
6	Coaching Legal Department on developing a legal library	5/15 - 11/15	MoMP	NA
7	Mentoring Program for MoMP Department of Public Relations & Communications to support development of effective public information strategies (terminated for non-participation)	5/15 - 10/15	MoMP	NA
8	Training session on Petroleum Engineering (5x)	1/13	NA	NA
9	On-site Field Representative Training	1/13	MoMP	NA
10	Economic Modelling of E&P Investment	2/13 - 4/13	MoMP	15

11	Organizational Development Training for oil & gas engineers	2/13	MoMP	24
12	Bid Evaluation Training	3/13 & 6/13	MoMP	8
13	US Department of Commerce Short Course on Oil and Gas Contracts for Legal and Regulatory Director	6/13	MoMP	NA
14	GPS Training	6/13	NA	NA
15	Natural Gas Economics Training	6/13	AGE, OGS	40 staff (30% women, 70% men)
16	Nine procurement training sessions	8/13-12/13	MoMP	NA
17	SGDP procurement training (2x)	10/13	APA	25
18	Training in Abu Dhabi on Drill site procedures	12/13	MoMP	NA
19	Invoice processing and payment training	2/14	AGE	2
20	Five days contract management training	3/14	MoMP	32
21	Introduction to geological studies, oil and gas field terms, exploration techniques and historical field data from northern Afghanistan	3/14	NA	38 from AGE and 37 from OGS
22	Environmental Law and Regulations Training	5/14	MoMP, MEW, and DABS & staff members from other development orgs.	Over 75
23	Petroleum Engineering Class Tests	5/14 - 6/15	NA	NA
24	GIS Training	6/14 - 12/14	APA	NA
25	Use of the SGDP Economic Model (gas price impact on generation costs)	8/14	DABS	3
26	Transformation Capacity Constraint training	8/14	DABS	NA

27	Project Management Fundamentals course	8/14	MoMP	25
28	Basic Economics Short Course	10/14 & 11/14	NA	NA
29	Gas Processing training in collaboration with TFBSO	9/14 - 11/14	NA	NA
30	Petroleum management short course	11/14	MoMP	NA
31	Petroleum Economics and Financing	12/14	NA	NA
32	Finance and economics course	1/15	AGS, MoMP	NA
33	Gas market analysis training sessions for DABS and MoMP	2/15	DABS, MoMP	NA
34	TPAO-MoMP contract training	3/15	AGE, OGS	NA
35	Executive Gas-to Power Negotiation Simulation	3/15	NA	NA
36	Coaching on reporting procedures for the TPAO contract	4/15 - 5/15	APA	NA
37	Training on adding data from TPAO's daily reports to its monthly drilling progress report	4/15 - 5/15	APA	NA
38	Well drilling training	4/15 - 12/15	NA	NA
40	Health & safety policies and procedures training	5/15 - 12/15	AGE, OGS	NA
41	Training on calibration and use of gas chromatograph donated by TFBSO	5/15 - 10/15	NA	NA

ANNEX XII: CONSULTANT QUALIFICATIONS

Note: Personal Identifiable Information (PII) deleted from public version due to privacy concerns.

ANNEX XIII. KEY FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS MATRIX

Evaluation Questions	Findings[28]	Conclusions	Recommendations
1. To what extent is the SGGA development hypothesis valid? Did development assumptions hold true throughout the project?	SGGA did not have a formal development hypothesis, but the evaluation team's suggested hypothesis for this project (see team's response to question 1) could not be proven because both its explicit and implicit development assumptions did not hold true. The ET's key findings for this question follow below:	N/A	N/A
	1.1 Project Scope: SGGA attempted to integrate a wide range of energy sector development activities into a single project. However, the ET identified several examples of under-resourcing or structural limitations during key stages of SGGA and SGDP's implementation, including: under-budgeting the gas processing plant by 100%; under-budgeting the petroleum engineering support contract by 300%; and accepting minimally qualified drilling service providers because they were the only ones that bid within budget (and conformed to USG salary limitations). Such unrealistic planning creates	USAID did not possess sufficient financial resources, necessary resident technical knowledge, or the USG contractual/ structural flexibility necessary in most sector components to effectively address all of these elements within the project simultaneously.	USAID can more effectively promote the Afghan extractives sector by focusing its future interventions on more narrowly defined actions that have a higher likelihood of success. There are a number of USG agencies that contribute critical input to extractives development and management with which USAID could partner in order to provide meaningful guidance to MoMP/GIRoA. Because USAID has limited in-house expertise in the extractives sector, it should have on-demand access to extractives sector experts that can

[28] As this FCR only lays out key/high-level findings, conclusion, and recommendations, the findings are amalgamated from multiple sources and are noted as such. To maintain the confidentiality of respondents, the KII references have been randomized and tied to a key, which has been kept separate from this submission.

	inflated hopes for project outcomes (e.g. an expectation that three wells could be prepared for production at Juma/Bashikurd, or that a processing facility might be built). When these outcomes are not realized, MoMP holds USAID to blame for non-performance. (Documented in AEAI monthly status reports for 11/11; 7/13; 12/13; 12/29; 4/14, among others and in KII-1315, KII-1630 and KII-1938.)		provide informed project design and costing advice.
	1.2 Resources: SGGA's design assumed that there were sufficient gas reserves in the existing AGE-owned Sheberghan gas fields to supply a major new power plant and potential new users. However, the McDaniel study, which was completed toward the end of SGGA, concluded that the existing field reserves had been depleted. Project developers based SGGA's design on dated findings presented in the Hill (2004) and Gustavson (2005) reports, and were based on production estimates derived from incomplete MoMP data. (Documented in Gustavson (2005); AEAI monthly reports for 12/14; 2/15; 4/15; 8/15; 3/16; 5/16, and McDaniel & Associates 3/16 and 7/16, among others) and KII-1754 and KII-1315.	The fact that the Sheberghan-based gas reserves were not sufficient to supply a major new power plant and potential new users means that the downstream uses planned for the gas from those reservoirs won't be realized. Additional new demand cannot be accommodated without new sources of gas.	Key premises of a project that are based heavily on a single verifiable assumption – e.g., that there were sufficient gas reserves – must test this assumption before the project is designed.

	1.3 MoMP Ownership: From its document review, the ET found that MoMP did not appear to provide promised implementation support on SGGA. Examples of this lack of MoMP support or responsiveness included inadequate funding for SGGA field activities, cancelled field visits and monitoring trips, facilities not being made available for trainings, staff not being given permission to participate in trainings, and delayed bill payments (e.g., TPAO) (Documented in AEAI monthly reports for 4/12; 6/12; 8/12; 10/12; 11/12; 12/12; 2/13; 2/14; 3/14; 4/14; 6/14; 12/14; 1/15; 2/15; 3/15; 4/15; 5/15; 6/15; 7/15; 9/15; 10/15; 3/16, among others, and KII-1757,1315 and KII-1938).	MoMP did not appear able to firmly commit to and "own" SGGA's implementation, which significantly limited the effectiveness of the intervention.	Donors must hold MoMP accountable to honoring in-kind agreements connected to programs. Examples of potential solutions include the following: • Suggest the establishment of a MoMP project escrow account to ensure that field staff receive their promised per diem on time and in full; • In-kind collaboration must be included in the MoMP's annual budgets as authorization for agreed financial outlays in support of collaborative activities. • Donor recipients should be assigned measurable performance milestones. Continued project funding should then be made contingent on meeting these milestones.
	1.4 MoMP's Administration & Management: The MoMP has very few HR mechanisms to deal with inadequate staff performance, and its leadership was unwilling to exercise its authority to compel compliance. The ET identified several issues regarding MoMP's managerial and administrative processes or culture that undermined SGGA implementation, including entrenched senior staff behavior related to traditional tribal patronage systems and Soviet organization processes, MoMP perceptions that SGGA-based activities could threaten the status quo and their respective	The Ministry's administration and management of SGGA significantly undermined two of the key assumptions underlying the project's development hypothesis: That MoMP understood the relevance of the SGDP/SGGA effort to the development of Afghanistan's extractives sector; and that it would commit to a serious effort to interact with SGGA to acquire (and hopefully keep) the skills needed to administer the extractives sector.	USAID should continue capacity building at the MoMP for both basic human resources management and budget/finance administration and for needed technical skills. For example, support to current in-house IT software development efforts could yield quick returns inexpensively. USAID should link future capacity building efforts to measurable performance improvements. Similarly, USAID should retain the services of an HR consultant to help MoMP institute a system of rewards

	positions within the Ministry, inflexible budgeting processes, and frequent leadership changes in key positions. Additionally, poor budgeting and administration led to spending freezes, unpaid per diem bills and staff layoffs. There is no documentation of capacity building success and appears that SGGA staff no longer remain at the MoMP. (Documented in AEAI monthly reports for 2/12; 12/12; 3/13; 4/13; 5/13; 7/13; 8/13; 10/13; 11/13; 12/13; 1/14; 4/14; 6/14; 8/14; 9/14; 10/14; 12/14; 2/15; 7/15; 9/15; 12/15; 1/16; 2/16; 4/16; 6/16, among others, and KII-1328, KII-1754, KII-1373-, KII-1013, KII-1041, KII-1757 and KII-1058).		and disincentives that encourage MoMP staff to improve their work performance. MoMP needs to finalize and formally adopt a long-term strategic plan which is then widely published to lessen operational disruptions caused by the constantly changing senior management.
2. Are the deliverable documents drafted by SGGA, contracts, regulations/laws and procedures still relevant or outdated?	All SGGA documents not containing privileged or confidential information were found to be relevant as of the time of this study. Most of the documents and guides produced by SGGA are based on Afghan Law and will remain valid until the laws change or the legal framework changes. Additional SGGA documents containing the basic blueprints for gas transmission requirements, midstream processing options, and downstream utilization options - will remain valid as long as the technology remains the same.	While the SGGA documents are currently relevant, this relevance will decrease as Afghan law and the technological processes utilized in the country's hydrocarbon sector continue to evolve.	It is recommended that SGGA's technical documents should be put online and made available to the public. SGGA's periodic reports should also be made public for use by future MoMP partners as lessons learned in their program planning. The Baker Botts PPP tender document should remain confidential but the review of possible PPP structures should be made public Expert guidance from a qualified Afghan lawyer is advised to guide businesses through the registration process and keep them in compliance with the relevant operating laws and regulations

3. What evidence is there of increased capacity in MoMP/ GIRoA? What factors threaten or support the retention of capacity gains at the organizational level?	3.1 Staff Capabilities and 3.2 Training Design and Content: The ET found low training matriculation, participation and completion rates varied among many MoMP staff for several reasons including literacy, aging employees, and limited qualifications and expertise. Many were not able to take advantage of much of the SGGA training, due to the remoteness of key MoMP directorates and perceptions that these outposts were ignored. Inter-Directorate and intra-Directorate rivalries undermined training and its replication elsewhere within MoMP and MoMP interviewees were critical of SGGA courses for their relevance and duration. They also compared SGGA unfavorably to TFBSO, which they felt embedded highly-qualified staff directly within the Ministry to work hand-in-hand with their MoMP counterparts (in contrast, interviewees felt that SGGA provided less-qualified SGGA consultants who only occasionally came to MoMP). Because of communication failures, many of the low-level key informants had no understanding of SGGA's specific contractual requirements. As a result, they concluded that SGGA and USAID were not responsive to MoMP needs. SGGA-trained staff also undermined MoMP's ability to retain the small percentage of staff who did proactively	The ET concluded that these factors significantly limited growth in the capacity of the MoMP.In the absence of rewards or penalties, MoMP staff have no real motivation to complete training successfully or for self-learning initiatives. The large gap identified between the MoMP's perceptions of the TFBSO versus SGGA is almost certainly due to differences in contract structures between the two organizations. TFBSO contracts allowed contractors to deliver advice and support to MoMP as needed, whereas USAID contracts are highly constrained, holding the contractor responsible for set deliverables on a specific schedule. The ET believes many MoMP staff criticized the trainings at least in part because they again saw them as potential threats to the aforementioned adherence to the patronage- and SOE-based status quo.	Because one of the key impediments to capacity improvement is an HR system that rewards patronage over capability, USAID should: ● Continue to stress the need for a merit-based HR system and strictly object to any patronage system in any new programs it supports in the future. ● Set aside some portion of the MoMP budget, which is currently heavily subsidized by donor contributions. This money should then be used specifically to support career pathway programs that reward active, highly qualified individuals with promotions and increased salary based on their demonstrated ability to successfully meet predetermined, measurable and independently verifiable promotion goals. Because some donors are reporting success in more aggressively holding Ministries accountable for performance and compliance with in-kind agreements by linking disbursements to tangible performance changes within the Ministry, USAID should therefore: ● Consistently link disbursements to tangible performance. ● Closely work with sector donors and help coordinate

	seek training and demonstrate increased capacity. The ET also found that classroom-based trainings were being provided without associated practical field or hands-on experience due to groups such as TPAO not allowing trainers and trainees on their drill rigs (Documented in AEAI monthly reports for 2/12; 4/12; 3/13; 5/13; 7/13; 8/13; 11/13; 1/14; 2/14; 3/14; 4/14; 6/14; 7/14; 8/14; 9/14, among other reports, and KII-1328, KII-1754, KII-1376, KII-1757, KII-1315, and KII-1702. However, complaints about poor course quality are contradicted by the information in Appendix XI, KII-1013, and monthly reports 9/13; 9/14; 2/15; 3/15; 4/15; 7/15 9/15; 10/15, among others).		their support to the sector to reduce opportunities for "donor shopping". Because improving faculty qualifications will result in an improved quality of technical training, USAID should take one or more of the following approaches: ● Augment capabilities of faculty in existing universities by adjusting requirements or recruitment efforts for the positions. ● Support improvements in targeted non-state universities to force state run universities to improve in order to stay competitive. ● Support the introduction of certified e-learning programs for related technical coursework. Bearing in mind that geology is a field science, USAID programs in extractives must make provisions to accommodate extended field training, including through 3rd country training experiences. Since graduates come to MoMP lacking critical skills, a long-term focus on improving the capabilities of university students at graduation should be considered
	3.3 Continuing Education as a Core Component of Work: SGGA staff continuously coached MoMP staff and provided OJT, yet also report that MoMP staff routinely refuse to listen or learn from SGGA coaches. The ET found no evidence that interviewed MoMP staff accepted responsibility for ongoing MoMP or self-initiated efforts to learn and improve their technical skills and government processes. SGGA has encountered instances of MoMP department directors forbidding its staff from consulting with SGGA on NEPA permitting applications to prevent anyone from learning that no one in the Directorate	Most MoMP Directorate heads are not advocates for an ongoing learning environment, nor supportive of individual continuing education. The leadership's stance on training has contributed to a paucity of skills among MoMP-and self-selected trainees and staff in key technical and language areas, and to instances of staff strongly purporting to have subject matter knowledge despite its obvious absence.	

	had the skill necessary to complete required reporting. MoMP lacks the HR tools and administrative policy to compel or incentivize its staff to take advantage of the learning opportunities presented to them by the donor community or other free sources. Similarly, MoMP's management do not have the authority to properly reward staff who are high learners and achievers (Documented in AEAI monthly reports for 4/12; 2/14; 7/14; 8/14; 9/14, among others, and in KII-1754, KII-1376, KII-1020, KII-1553, KII-1102, KII-1703, KII-1041, KII-1315, KII-1646, KII-1655, KII-1625, KII-1117 and KII-1702).	Given the reported instances of unqualified staff, MoMP HR policies must be improved to help retain qualified and trained staff and limit recruitment to only qualified staff.	
	3.4 Departure of Staff and 3.5 Needed Skills: While there was a good-faith effort at one point in the life of SGGA by MoMP's leadership to strengthen its capacity, the ET found that these gains were undermined by inflexible internal policies and proved short-lived after the leadership changed. While Minister Shahrani attempted to address the MoMP skills shortages by bringing in highly competent technical and administrative staff into MoMP at higher compensation levels, MoMP HR requirements dictated that many of these staff be hired on annual contracts. After Minister Shahrani stepped down from running the MoMP, the ET found from KIIs that this system has been rapidly dismantled under urging from low-paid	The unwinding of Minister Shahrani's effort to improve skills and capabilities within MoMP by hiring better skilled, and more motivated contract staff, has allowed entrenched patronage systems to remain intact. The reported wide scale loss of skilled MoMP staff raises questions regarding the sustainability of training programs. Competency based admissions with a yearly Freshman to Senior curriculum improvement effort at Afghan's engineering colleges may help to establish a system that starts generating the skill base needed for the extractives sector economic and	

	but permanent civil service staff who may be threatened by this new arrangement. This also resulted in layoffs that removed many of the most capable individuals trained by SGGA and other donors from MoMP service. MoMP staff agree that new university graduates do not have the skills necessary to work for MoMP and improving the quality of education in Afghanistan is a key priority. Older curriculums do not embrace free-market concepts or models and encourage innovation. Additionally, poor budgeting results in a cycle of layoffs and unqualified re-hires. Review of the curricula of the main government-run universities in Kabul indicate that critical technical capabilities are lacking (Documented in AEAI monthly reports for 11/14; 12/14; 1/15; 4/15; 6/15, among others, Advice and Support Action Plan 11/12, Revised Annual Work and Staffing Plan 11/12, Joint Capacity Enhancement Program Plan 12/12 and KII-1754, KII-1373, KII-1065, KII-1013, KII-1041, KII-1757, KII-1630 and KII-1702).	engineering management in Afghanistan.	
4. What obstacles prohibit the exploitation of natural gas deposits in Afghanistan? (Systems Analysis) 4.1: What resources (inputs) are necessary to exploit natural gas	4.1 Afghanistan does not currently have all of the investment conditions necessary to exploit natural gas deposits. Essential inputs include the following: Equipment: To be able to exploit hydrocarbon deposits a company needs the exploration tools (remote sensing data collection like seismic, gravity, etc.) to be able to target	MoMP has very few of these inputs with regard to either equipment or operating/investment conditions. MoMP/AGE must shift away from an SOE-based approach to gas development to one that fully includes real economics and without barriers to public private partnerships and private	The GIRoA needs to be encouraged to tender its exploration properties to private sector companies that have the demonstrated financial and technical skills needed to conduct successful exploration and development projects. USAID is best situated to guide GIRoA in these paradigm shifts as it has the ability to leverage the expertise of

deposits? Are these available locally?	locations for exploration, drills and drilling supplies (bits, muds, drill rods, casing pipe among many other supplies) to drill a test/production well, the ability to build the infrastructure to take the gas to a processing plant, the ability to distribute the product to end users. GIRoA expects its SOE to operate along the lines of a small version of Saudi Aramco, the world's premier vertically integrated hydrocarbon SOE but it is anticipated that AGE will collapse when its reserves are depleted in the near to mid-term and it does not have access to the cash needed to hire skilled contractors for continued operations. Operating/Investment Conditions: ● Exploration/production contracts must be sufficiently attractive to outside investors to incentivize them to risk investing in Afghanistan ● Hydrocarbons must be saleable at prevailing market rates. ● The domestic market should be opened to competition. (These findings are based on the ETs comprehensive understanding of the structure and operation of the hydrocarbon exploration, development, and production sector, and is further supported by information documented in monthly reports for 1/13; 5/13, 12/14, 3/15, among others)	sector investments and which have realistic fees. The experience of SGDP-funded activities such as its work with the TPAO demonstrates that AGE does not have the contract management skills planned by both SGGA and SGDP to administer these service contracts effectively.	other USG agencies and its responsibilities are to capacity building, job creation and poverty alleviation. MoMP should be encouraged to divest itself of AGE (and NCE). Currently, AGE can avoid operating efficiently because it can hide behind MoMP. As an independent entity, it will be forced to stand on its own or collapse. If AGE does collapse, its collapse as an independent entity will limit collateral damage to MoMP.

4.2: To what extent do the rules (laws, regulations, or procedures) support or prohibit exploiting natural gas deposits?	4.2 The GIRoA has difficulties interpreting and applying its own laws uniformly, which discourages investors, encourages corruption and excessive bureaucracy, and significantly limits its ability to exploit natural gas deposits in Afghanistan (These findings based on KII-1328, KII-1754, and KII-1315.) This inability was demonstrated by the MoMP's reaction to the collapse of the TPAO bid for Totimaidan, after USAID insistence that TPAO absorb some of the cost of drilling Juma/Bashikurd (since it was included in the Totimaidan bid block). SGGA reports indicate that MoMP did not accept that there was an inherent conflict of interest in this arrangement (Documented in SGGA 2014 Gas to Power Symposium, AEAI monthly reports for 3/14; 7/14; 11/14; 1/15; 2/15; 3/15; 9/15, among others, the Joint Capacity Enhancement Program Plan 12/12, and in KII-1553, KII-1102, KII-1703, KII-1364 and KII-1117).	Viable strategies have been proposed to encourage private investors, but GIRoA does not endorse the economic basis of many such proposals and rejects them, claiming, inaccurately, that they violate Afghan law. However, a review of the existing Afghan Hydrocarbon Law and PPP Law indicates that if these are consistently and uniformly implemented, they can permit natural gas exploration.	The current laws, regulations and procedure are workable but are not investor-friendly. Since GIROA does not currently have the financial resources to hire the services of contract driller/deposit developer, it should negotiate exploration/ development contracts without a primary focus on the capture of the commodity value of its extractives.
4.3: What roles are necessary to exploit natural gas deposits? Who is fulfilling these roles and how well?	4.3 Necessary roles include exploration experts, land agents, environmental specialists, skilled oil rig drillers, specialized mechanics, different kinds of engineers, health & safety inspectors and financial specialists. Afghanistan suffers from a critical shortage of trained and experienced professionals in essentially all of these roles. Many of these roles are now filled by long experienced staff who function without the	While MoMP staff who interact with these companies may acquire some "on the job training" skills as a result of those interactions, the overall required Afghan-based institutional capabilities to exploit natural gas deposits are lacking.	The Afghan Government does not currently have the financial resources needed to hire technical specialists capable of conducting hydrocarbon exploration. USAID should encourage GIRoA to tender its exploration properties to private sector companies that have demonstrated the financial resources and technical skills needed to conduct successful exploration and development projects.

	necessary knowledge or even the ability to read. All of the hydrocarbons exploration and development expertise is currently foreign. (Documented in AEAI deliverables AEAI (December 29, 2012); AEAI (July 11, 2013), AEAI (March 24, 2015), monthly report 9/14, and KII-1328, KII-1754, KII-1373, KII-1020, KII-1013, KII-1041 and KII-1315.		
4.4: How do the relationships in the system support or prohibit exploiting natural gas deposits?	4.4 MoMP does not currently have a system to motivate or reward staff for their efforts to develop the sector. The MoMP is the responsible agency in GIRoA for managing the exploitation of natural gas deposits, but a general lack of inter-directorate collaboration or information sharing constrains initiatives and serves as a barrier to private initiatives in the sector. A MoMP that has little or no understanding of how the private sector functions; and a Government that insists on capturing the commodity value of its resources has dramatically slowed the development of the hydrocarbon and mining sectors. The unrealistic extraction contract terms required by the Afghan Government and negotiated at a time of high commodity prices further slow development, because these contracts are no longer economically viable. (Documented in AEAI monthly reports for 2/12; 6/12; 8/12; 3/13; 4/13; 5/13; 7/13; 8/13; 10/13; 11/13; 12/13; 1/14; 4/14; 6/14; 8/14; 9/14; 12/14; 1/15; 4/15; 9/15; 2/16; 3/16;	The antagonistic nature of the MoMP's intra- and inter-ministerial relationships constrains initiatives and serves as a barrier to private initiatives in the sector. The recent MoMP initiative to develop a 'road map' will hopefully give guidance for a consistent and focused future that is amenable to private sector initiatives.	SGGA experienced numerous, major project implementation breakdowns because of an unwillingness to share data between directorates. The MoMP should promote HR incentives that promote cooperation, data sharing and enforceable disincentives to discourage data hoarding. USAID should support MoMP's in-house information management efforts, which utilize open-source software to build a shared database for improved collaboration and management control.

	4/16; 6/16, among others, and KII-1328, KII-1754, KII-1013, KII-1041, KII-1757, KII-1315, KII-1646, KII-1655, KII-1833 and KII-1938. Many of the ETs insights into these dynamics are also derived from KIIs and project reports assessed during the MIDAS program review conducted by the same team (see Hagan, et al., 2017).		
4.5: Where is the demand for these results coming from? Is there opposition to achieving these results?	4.5 KIIs with MoMP staff make it clear that MoMP believes that all of Afghanistan's natural resources are the property of the Afghan Government and that the Government itself should obtain as much of the commodity value directly for its treasury as possible. GIRoA tolerates private investment in its extractives sector because it has no other option, yet has negotiated unrealistic exploration and production fee structures. Development contracts are structured such that bid winners are treated like contract prospectors who will accept all the risk of development in exchange for access to the site and hopes for a minimal operating profit. No serious investor in the extractives sector would consider this deal. GIRoA selects bid winners on the basis of the highest royalty/production sharing offer made without regard to actual ability to deliver on the contract. As a result, all of the awarded contracts are non-performing or behind schedule because they were awarded to companies that offer a high return, but were not required to demonstrate a	GIRoA and the MoMP do not seem to include the economic value of the extractives sector's jobs multiplier factor that benefit all in its valuation of initiatives and development planning. Given its policies toward private entities, MoMP has been largely ineffective at promoting private sector investment.	With regard to the private sector, MoMP leadership and staff should have ongoing exposure to trainings, study tours, economic workshops, and other events that enable them to observe repeated and multiple perspectives on how free market extractives development benefits an economy more effectively than focusing exclusively on capturing commodity value. USAID should provide training to GIRoA regarding how to select qualified bidders, which are not necessarily the highest bidders. GIRoA should also be provided with expert advice to help them renegotiate non-performing contracts so that they conform to international best practice. Guidance should also be provided to help them restart negotiations based on international best practice at Hajigak, Balkhab, Badakhshan, Shaida, and Zarkashan, so that development of these properties can begin as soon as possible under a workable contract.

	strong success history or the capacity to deliver (Our understanding into the thinking of the GIRoA on this matter is derived from insights the ET has gained from hundreds of conversations with GIRoA staff and officials since 2005. In addition, the ET, as a result of other assignments carried out in Afghanistan, is familiar with some aspects of the extractives contracts accepted by GIRoA. These contractual aspects indicate clearly that the GIRoA negotiating position is to capture the commodity value of the nation's resources. Several KIIs that occurred during the SGGA evaluation (KII-1328, KII-1754, KII-1373, KII-1757, KII-1938, KII-1702, among others) and many the occurred during the MIDAS evaluation (see Hagan et al., 2017) confirm that the GIRoA continues to maintain this position).		
5. Has the McDaniel & Associates Gas Reserve Studies of eight existing gas fields, including test results of two Juma Bashikurd gas wells, influenced sector development in Afghanistan? If so, how and why?	5.1 The McDaniel report revealed that the Sheberghan gas fields are mostly depleted and that the downstream uses planned for the gas from those specific reservoirs can never be realized. The report also shows that in the near future, AGE's existing gas reserves might be depleted. The results of the study have several implications for the sector's development: ● The development of secondary industries cannot be supported by the existing AGE gas reserves. New users will have to be supplied	The results of the McDaniel report mean that AGE will struggle to remain viable, with its existing reserves nearly depleted, infrastructure deteriorating, inadequate cash flow to operate, and potentially significant medical liabilities associated with its delivery of sour gas to residential users. The results also show the extent of the need to find new oil and gas reserves in Afghanistan cannot be overstated.	Given the urgency to find new oil and gas reserves in Afghanistan, GIRoA must adopt – or be encouraged to adopt by USAID and other international agencies - policies in the oil and gas sector that incentivize exploration lease holders to accelerate their exploration efforts. This may include improved lease terms or amended profit sharing agreements. In order to more effectively track the private bidding process and ongoing exploration efforts, it is critical that GIRoA be offered an

	by new discoveries by private sector drillers. ● Because all the current bid winners are struggling to meet the production targets specified in their contracts, it will likely be some time before sufficient gas reserves are made available to fuel additional users. ● New supplies are likely to come from fields farther away from Sheberghan, so planned transmission infrastructure and plant locations may need revision. These findings are based on the ET's comprehensive understanding of the international hydrocarbon sector; the ET's understanding of the Afghan hydrocarbon sector; and the ET's understanding of hydrocarbon resource distribution in Afghanistan. Other sources include Gustavson (2005), and McDaniel & Associates 3/16 and 7/16 and KII-1328, KII-1754, KII-1373, KII-1315, KII-1702, among others). This knowledge allows the ET to understand the implications of the findings presented in the McDaniel & Associates report, and from this information, develop the findings presented in EQ-5.		incentive structure by its private and/or external government partners to develop a transparent oversight process for all oil and gas sector activities. Such incentives should include tying additional aid funds to MoMP staff's operational training, limiting staff turnover and the Ministry passing through an external audit of existing organizational systems and practices.

U.S. Agency for International Development
1300 Pennsylvania Avenue, NW
Washington, DC 20523